The Impact of Open Source Software on Education

By:
Ken Udas

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C O N N E X I O N S

Rice University, Houston, Texas

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Chapter 1

Introduction

1.1 Introduction - The Impact of Open Source Software on Education[1]

I am happy to announce that beginning today, March 12, 2007, a collection of international authors will post brief articles featuring their perspectives on the Impact of Open Source Software (OSS) on Education. The posts will appear biweekly on this site. The authors have generously agreed to spend time responding to questions and engaging in dialog after their postings have been made.

Although the topic of the series is the Impact of Open Source Software (OSS) on Education, we anticipate that other related topics will be addressed, among them almost certainly will be open educational resources (OER) and open courseware (OCW). It is our intent to not only provide a rich resource on the theme of this series, but to also contribute to the larger movement of free content by making the resources that we create widely and freely available. In an effort to do so, a few days after each posting, the articles, discussion, and a brief summary will be reformatted and made available on WikiEducator as Open Educational Resources. It is our hope that these resources will take a life of their own as they are reused, modified, and returned to the community. This being the case, please be aware that your contributions to this Series might serve as tools for change and progress.

I am happy to announce that the next posting on Terra Incognita will be the first contribution to the Series. An interview with Ruth Sabean, assistant vice provost for educational technology in UCLA's College of Letters and Science will be posted in two parts. Ruth managed the evaluation process at UCLA that resulted in the selection of the open source application Moodle. We welcome your comments to the Interview and in subsequent posts.

If you are interested in learning more about the "Impact of Open Source Software on Education series, visit WikiEducator[2] ", where you will find additional information, including the developing schedule.

We all look forward to your contributions, comments, feedback, and engagement.

[1] This content is available online at <http://cnx.org/content/m19806/1.2/>.

[2] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 2

Author Profiles

2.1 Author Profiles[1]

2.1.1 Rob Abel

Figure 2.1: Rob Abel

Already a veteran Silicon Valley high tech entrepreneur, Rob Abel entered the world of educational technology in 1999 by joining Collegis (now SunGard Higher Education[2]), the leading provider of information, academic, and online technology services in the U.S. higher education market. Prior to joining Collegis, he was responsible for development of products and services for online learning at Oracle. In 2004 Rob founded the Alliance for Higher Education Competitiveness (A-HEC) to conduct research on best practices in the use of technology in education. One study conducted near the end of 2005 looked specifically at the level and types of adoption of open source in the U.S. higher education market, sponsored by Sun, SCT, and Unicon. The report on this unique study is available online at the A-HEC Open Source Software Research[3] site.

In February 2006 Rob was appointed as the CEO of the IMS Global Learning Consortium (IMS GLC), a non-profit member consortium that have been focused on developing specifications and standards for interoperability exclusively in the learning sector for now over eleven years. Participation in IMS GLC

[1] This content is available online at <http://cnx.org/content/m14773/1.5/>.
[2] http://www.sungardhe.com/
[3] http://www.a-hec.org/open_source.html

includes an annual report on Learning Impact: Trends in Learning, Technology, and Standards[4] . This report was inspired by the need to "connect the dots" between new and innovative learning technologies and the key global challenges of education leaders across sectors. IMS GLC has featured tracks on open technologies in its annual conference each of the last two years.

2.1.2 Gavin Baker

Figure 2.2: Gavin Baker

Gavin Baker is an IT and public policy consultant. Currently he is developing a student outreach campaign for SPARC[5] , the Scholarly Publishing and Academic Resources Coalition, on the subject of open access to academic journal literature. Gavin also serves on the board of directors for FreeCulture.org[6] , which is an international student organization that promotes the public interest in intellectual property and information & communications technology policy.

2.1.3 Leigh Blackall

Figure 2.3: Leigh Blackall

[4] http://www.imsglobal.org/learningimpact2007/li2007report.cfm
[5] http://www.arl.org/sparc/
[6] http://freeculture.org/

Leigh Blackall specializes in networked learning and socially networked media and communications. He is employed as an Educational Developer at the Otago Polytechnic[7] in Dunedin, New Zealand, and blogs his work to Learn Online[8] .

2.1.4 Cole Camplese

Figure 2.4: Cole Camplese

Cole W. Camplese serves as the Director of Education Technology Services at the Pennsylvania State University. As Director, it is his responsibility to oversee University-wide initiatives with a focus on impacting teaching and learning with technology. He guides teams in the appropriate uses of technologies in the contexts of teaching and learning. His primary area of focus is the integration of emerging technologies into learning spaces. At Penn State, the overwhelming challenge is providing scalable solutions that the nearly 90,000 students and 5,000 faculty can successfully use to enhance their teaching and learning environments.

Camplese has recently worked to integrate several new emerging technologies into curricular activities at Penn State to support digital expression. He and his team have lead the creation of the Blogs at Penn State[9] , Podcasts at Penn State[10] , and the Digital Commons[11] . Camplese oversees the annual Symposium for Teaching and Learning with Technology[12] , several community development events, and numerous other initiatives designed to support the adoption of technology for teaching and learning.

[7] http://www.otagopolytechnic.ac.nz/
[8] http://learnonline.wordpress.com/
[9] http://blogs.psu.edu/
[10] http://podcasts.psu.edu/
[11] http://digitalcommons.psu.edu/
[12] http://symposium.tlt.psu.edu/

2.1.5 James Dalziel

Figure 2.5: James Dalziel

James Dalziel is Professor of Learning Technology and Director of the Macquarie E-Learning Centre Of Excellence[13] (MELCOE) at Macquarie University in Sydney, Australia. Prior to his current roles, James helped lead the COLIS[14] (Collaborative Online Learning and Information Services) project, was a Director of WebMCQ Pty Ltd, an e-learning and assessment company, and was a Lecturer in Psychology at the University of Sydney. James currently leads a number of projects including:

- LAMS
- MAMS (Meta Access Management System) - a national identity and access infrastructure project for the Australian higher education sector
- RAMP(Research Activityflow and Middleware Priorities) - a project investigating open standards authorization and e-Research workflows
- ASK-OSS[15] (the Australian Service for Knowledge of Open Source Software) - a national advisory service on open source issues for the Australia higher education and research sector

2.1.6 Jean-Claude Dauphin

Figure 2.6: Jean_Claude Dauphin

[13] http://www.melcoe.mq.edu.au/
[14] http://www.colis.mq.edu.au/
[15] http://ask-oss.mq.edu.au/

Jean-Claude Dauphin works at UNESCO HQ, Paris, in the Information Society Division. He has a software developer background and contributes to the development and dissemination of UNESCO information processing tools such as the Open Source Greenstone Digital Library system. He is also in charge of the UNESCO Free and Open Source portal and a member of the team in charge of UNESCO "ICT in Education, Sciences and Culture" activities. He is involved in activities related to Openness, and has a strong interest in FOSS Education solutions and open educational resources.

2.1.7 Michael Feldstein

Figure 2.7: Michael Feldstein

Michael Feldstein is the author of the e-Literate[16] weblog. He is a lifelong educator who has been involved in online learning for eleven years. Michael has been a member of eLearn Magazine'[17] s Editorial Advisory Board and is a current participant in the IMS[18] . He is a frequent invited speaker on a range of e-learning-related topics. Most recently, he has been invited to speak on topics including e-learning usability, LMS evaluation methods, ePortfolios, and edupatents for organizations ranging from the eLearning Guild to the Postsecondary Electronic Standards Council, and has been interviewed as an e-learning expert by a variety of media outlets, including The Chronicle of Higher Education, the Associated Press, and U.S. News and World Report.

[16] http://www.mfeldstein.com/
[17] http://www.elearnmag.org/
[18] http://www.imsproject.org/

2.1.8 Steve Foerster

Figure 2.8: Steve Foerster

Steve currently serves as the Director of E-Learning at Marymount University[19] in Arlington, Virginia, where he oversees distance learning, instructional technology, and technical training. He is also on the Advisory Board of WikiEducator[20] , a Commonwealth of Learning funded project to develop a complete set of open educational resources for all disciplines at the primary, secondary, and tertiary level by 2015. He migrated to the open education movement from having been an open source software enthusiast, and prefers dedicating content to the public domain rather than licensing it.

2.1.9 Christine Geith

Figure 2.9: Christine Geith

Dr. Christine Geith is an assistant provost and executive director of Michigan State University's MSUglobal[21] , the university's entrepreneurial business unit that works with academic partners across the campus and

[19] http://www.marymount.edu/its/els
[20] http://wikieducator.org/
[21] http://www.msuglobal.com/

worldwide to develop online institutes, programs and services. She is responsible for developing strategic frameworks and business models and leading all activities that impact revenue growth.

2.1.10 Amee Godwin

Figure 2.10: Amee Godwin

Amee Godwin serves as Program Director, OER Commons[22] , Institute for the Study of Knowledge Management in Education[23] (ISKME). Amee Godwin has over a decade of experience in applied research and development of community applications. Her work focuses on connecting technology, education, and collaboration. At ISKME, she guides the development of content, interactivity, and partnerships for OER Commons, a teaching and learning network for open educational resources.

2.1.11 Mara Hancock

Figure 2.11: Mara Hancock

Mara Hancock serves as Associate Director for Educational Technology Services at UC Berkeley, and oversees the Learning Systems Group(LSG). She manages an extremely talented team of educational technologists, software programmers and architects, User Experience Designers, and training and support folks. We work with UC Berkeley faculty, students, and staff, as well as other educational technology professionals around the world to develop, adopt, and support collaboration and learning systems to enhance the teaching and learning experience.

[22] http://www.oercommons.org/
[23] http://www.iskme.org/

2.1.12 Derek Keats

Figure 2.12: Derek Keats

Professor Derek W. Keats is Executive Director (similar to CIO in the US) of Information & Communication Services (ICS) at the University of the Western Cape[24] (UWC), where he is discovering Enterprise 2.0. ICS has a mandate to use information and communications technologies to strengthen UWC as a national institution of higher education in a global context.

Derek is a marine biologist with strong interests in using technology to improve teaching-and-learning, to enable higher education to create Education 3.0, and to promote sustainable development.

2.1.13 Andy Lane

Figure 2.13: Andy Lane

Professor Andy Lane has a BSc in Plant Sciences and a PhD in Pest Management from the University of London[25] . He has been at The Open University[26] since 1983 and held various offices in the former Technology Faculty (now Faculty of Maths, Computing and Technology) including being Head of the Systems Department and Dean of the Technology Faculty.

[24] http://www.uwc.ac.za/
[25] http://www.lon.ac.uk/
[26] http://www.open.ac.uk/

Promoted to Professor of Environmental Systems in 2005, he was appointed as Director of The Open University's OpenLearn [27] Initiative in 2006. He has authored or co-authored many teaching texts and research papers dealing with systems thinking and environmental management, the use of diagramming to aid systems thinking and study, and more recently the development and use of Open Educational Resources.

2.1.14 Wayne Mackintosh

Figure 2.14: Wayne Mackintosh

Wayne Mackintosh contributed to the series in mid-April and talked about WikiEducator[28] , the freedom culture, and education.

In addition to Wayne's work on WikiEducator, he was the founding project leader of New Zealand's eLearning XHTML editor (eXe)[29] project. Wayne is a committed advocate and user of free software for education. He currently serves the Commonwealth of Learning (COL)[30] as Education Specialist, eLearning and ICT Policy and is the founding director of the Centre for Flexible and Distance Learning (CFDL) at the University of Auckland, New Zealand. Wayne has extensive experience in the theory and practice of open and distance learning (ODL). Prior to moving to New Zealand he spent eleven years working at the University of South Africa[31] (UNISA), a distance learning institution and one of the world's mega-universities.

[27] http://www.open.ac.uk/openlearn/home.php
[28] http://www.wikieducator.org/Main_Page
[29] http://www.exelearning.org
[30] http://www.col.org/
[31] http://www.unisa.ac.za/

2.1.15 Dr. Farideh Mashayekh

Figure 2.15: Farideh Mashayekh

Dr. Farideh Mashayekh serves as a Strategic Consultant in Educational Planning and Pedagogy with Pedagogy.ir.[32] Much of her teaching, research, and other work have focused on systems approaches to planning adult education and lifelong learning and the application of cognitive and constructivist schools of thought in teaching-learning processes. In addition to being a prime mover behind Pedagogy.ir, she is a thought leader in the adult education community in Iran.

2.1.16 Pat Masson

Figure 2.16: Pat Masson

Pat Masson's contribution to the OSS series was from personal experience about the barriers to institutional adoption of open source software. Pat currently serves as the Chief Information Officer for New York College of Technology at Delhi. As CIO, Pat provides oversight, leadership and vision for the college's Campus Information Services including enterprise applications, technical centers and labs, server/systems administration, network & telecommunications, online/distance learning as well as user support such as help desk services.

[32] http://www.pedagogy.ir/

2.1.17 Dick Moore

Figure 2.17: Pat Masson

Dick Moore serves as Director of Technology at Ufi[33] , where he looks after four teams that design, build and maintain learndirect's IT infrastructure. The concept of a 'University for Industry' led to the creation of Ufi, which in turn serves as an umbrella organization supporting learndirect. Learndirect is the world's largest publicly funded e-learning platform with in excess of 2,5 million learners.

2.1.18 Craig Perue

Figure 2.18: Craig Perue

Craig Perue was appointed as the first staff member in the Instruction Support Systems unit in the IT department of the largest University of the West Indies[34] campus in 2003. Craig was responsible for stimulating faculty adoption of WebCT which was being implemented across the University that year. The programme was so successful that the campus outstripped its budget for WebCT licenses which then allowed Craig to lead the evaluation of open source alternatives and one of the largest early implementations of moodle (15,000 students) in January 2004. As the manager of the campus's educational technology practice, he led the campus's re-branding and development of moodle as OurVLE and the campus's migration away from WebCT, as well as the successful evangelization of moodle throughout the University and the English-speaking Caribbean.

[33] http://www.ufi.com/home/default.asp
[34] http://www.mona.uwi.edu/about/index.htm

2.1.19 Ruth Sabean

Figure 2.19: Ruth Sabean

The first guest contributor in our OSS Series, Ruth Sabean serves as the assistant vice provost for educational technology in UCLA's College of Letters and Science[35] and director of educational technology in the university's Office of Information Technology[36] .

Sabean is responsible for developing strategic educational technology plans and initiatives for UCLA that will improve the student educational experience through technology. From 1993–2002, she was the assistant director for educational technology in UCLA's Office of Instructional Development, following positions directing and managing academic computing services at Cornell University [37] and UCLA, and an early career in software development. She is an active member of EDUCAUSE[38] , Seminars on Academic Computing[39] (SAC), and the New Media Consortium[40] (NMC). She has served on the boards of SAC, the NMC, and the EDUCAUSE Advisory Committee on Teaching & Learning. Sabean holds an M.S. degree in computer science from the University of Pittsburgh[41] .

[35] http://www.college.ucla.edu/
[36] http://www.oit.ucla.edu/
[37] http://www.cornell.edu/
[38] http://www.educause.edu/
[39] http://net.educause.edu/sac
[40] http://www.nmc.org/
[41] http://www.pitt.edu/

2.1.20 Gary Schwartz

Figure 2.20: Gary Schwartz

Gary Schwartz, Director of Communications & Middleware Technologies at Rensselaer Polytechnic Institute, has over 25 years experience in Higher Ed IT, first as a programmer, and subsequently in management. His present responsibilities include centralized email, directory, and web services and middleware, and web software development. He is the project manager and spokesperson for Bedework, the open source, enterprise calendaring system for Higher Ed.

2.1.21 Stuart Sim

Figure 2.21: Stuart Sim

Stuart Sim serves as the Chief Technology Officers and Chief Architect of Moodlerooms[42] , which provides comprehensive technical support services to the Moodle[43] course management system open source software.

Stuart has spent the past 15 years developing enterprise solutions around the world in the education and financial sectors. His core expertise is in the design and delivery of large-scale implementations using combinations of classic and innovative development methodologies in distributed multi-disciplinary environments.

[42] http://www.moodlerooms.com/
[43] http://moodle.org/

2.1.22 Joel Thierstein

Figure 2.22: Joel Thierstein

Dr. Joel Thierstein serves as the Associate Provost for Innovative Scholarly Communication at Rice University and Executive Director of Connexions[44] . Prior to coming to Rice, Joel served as an Associate Professor and Director of New Media Communications at Oregon State University. He also served as a professor at Baylor University, Purdue University Calumet, and Southern Illinois University at Edwardsville. Dr. Thierstein has also served as a visiting professor of Communications Law at Syracuse University.

Writing extensively in telecommunications, Joel's books include Birds In Flight: Satellites In The New Millennium, 3rd ed. and Religion, Law and Freedom: A Global Perspective. In addition, to Joel's obvious commitment to open and sustainable education, he also has served as a Board member of Fossil Rim Wildlife Center since 2000 and Board Chair since 2003, and has worked extensively with the Conservation Centers for Species Survival.

2.1.23 Kim Tucker

Figure 2.23: Kim Tucker

[44] http://cnx.org/

Kim Tucker is our fourth guest contributor to this series and will be writing on a number of related topics that integrate Free Libre Open Source Software[45] (FLOSS) and free knowledge and equality in education, while also posing questions about what we mean by equality in education and the implications for digital inclusion. The term "libre" refers to distinguish freeware (gratis software) from free software[46] , which encompasses use, modification, and distribution. Kim is currently working as a researcher at the Meraka Institute,[47] managed by the Council for Scientific and Industrial Research[48] (CSIR) in South Africa. The main focus of his research is the introduction of technology and collaborative learning opportunities, and FLOSS for knowledge sharing and education. Kim also provides general advocacy of FLOSS and libre knowledge. His background includes some cognitive psychology, computer science lecturing, environmental decision support-systems development and other aspects of software development (Java, architecture, patterns, agile methodologies, etc.), and conservation biology (M.Sc.).

2.1.24 Martin Weller

Figure 2.24: Martin Weller

Martin Weller is Professor of Educational Technology at the Open University in the UK[49] . He chaired the OU's first major online course with 15,000 students, was the VLE Project Director and is now Director of the SocialLearn project. His interests are in elearning, web 2.0 and the implications of new technologies for higher education. He blogs at edtechie.net[50] .

His post will look at the SocialLearn project, which is the Open University's attempt to create an open API-based social networking system for learning. He will look at the motivations behind the project, what it hopes to achieve and how the technology is being used as the medium through which the institution itself comes to understand the changes happening in society and in education as a result of digital technologies.

[45] http://en.wikipedia.org/wiki/FOSS
[46] http://freedomdefined.org/Definition
[47] http://www.meraka.org.za/
[48] http://www.csir.co.za/
[49] http://www.open.ac.uk/
[50] http://nogoodreason.typepad.co.uk/

2.1.25 David Wiley

Figure 2.25: David Wiley

David Wiley currently serves as an Associate Professor of Instructional Technology and also the Director of the Center for Open and Sustainable Learning, (C()SL)[51] , at Utah State University. He is best known for having coined the term Open Content and creating the first open source-style license for non-software. His work on open content, open education, and informal online learning communities has been reported in many international outlets. His leadership in the open education resource is widely recognized.

2.1.26 Richard Wyles

Figure 2.26: Richard Wyles

[51] http://cosl.usu.edu/

Richard's OSS series contribution focused around innovation for education and the infrastructure of New Zealand's education system. Richard Wyles is a director and co-founder of Flexible Learning Network[52] Ltd, a private company focused on flexible learning solutions for the education, corporate training and public sectors. For the past four years Richard has been leading national eLearning infrastructure projects in New Zealand, underpinned by open source and particularly Moodle. A full-time development team, now numbering around 10 programmers has been working continuously on Moodle[53] and related open source projects since May 2004. Within a short period of time, Moodle is now the most widely used Learning Management System in New Zealand, particularly in the post-secondary vocational educational sector and increasingly within government sector departments.

[52] http://www.flexible.co.nz/
[53] http://moodle.org/

Chapter 3

UCLA Selects Open Source Solution (Ruth Sabean)

3.1 Introduction - Ruth Sabean[1]

3.1.1 Ruth Sabean

Ruth Sabean serves as the assistant vice provost for educational technology in UCLA's College of Letters and Science and director of educational technology in the university's Office of Information Technology.

Sabean is responsible for developing strategic educational technology plans and initiatives for UCLA that will improve the student educational experience through technology. From 1993–2002, she was the assistant director for educational technology in UCLA's Office of Instructional Development, following positions directing and managing academic computing services at Cornell University and UCLA, and an early career in software development. She is an active member of EDUCAUSE, Seminars on Academic Computing (SAC), and the New Media Consortium (NMC). She has served on the boards of SAC, the NMC, and the EDUCAUSE Advisory Committee on Teaching & Learning. Sabean holds an M.S. degree in computer science from the University of Pittsburgh. She can be reached at rsabean@ucla.edu.

3.2 Ruth Sabean Interview - Part 1 - UCLA Selects Open Source Solution[2]

NOTE: Interview with Ruth Sabean conducted by Ken Udas. Originally posted on March 12th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

3.2.1 Introduction

This is the first part of two postings that together compose an interview with Ruth Sabean about UCLA's selection of an open source common collaboration and learning environment. This Interview is the first installation of the Impact of Open Source Software on Education Series. We welcome and encourage commenting on the posts.

[1] This content is available online at <http://cnx.org/content/m14639/1.6/>.
[2] This content is available online at <http://cnx.org/content/m14640/1.8/>.

Recently UCLA[3] selected Moodle[4] as their common collaboration and learning environment (CCLE) and decided to remain engaged with the higher education community and the Sakai Foundation[5] to pursue interoperability. I talked with Ruth Sabean who serves as the assistant vice provost for educational technology in UCLA's College of Letters and Science[6] and director of educational technology in the university's Office of Information Technology[7] , to learn more about their decision to go with Moodle.

Sabean is responsible for developing strategic educational technology plans and initiatives for UCLA that will improve the student educational experience through technology. From 1993–2002, she was the assistant director for educational technology in UCLA's Office of Instructional Development, following positions directing and managing academic computing services at Cornell University[8] and UCLA, and an early career in software development. She is an active member of EDUCAUSE[9] , Seminars on Academic Computing[10] (SAC), and the New Media Consortium[11] (NMC). She has served on the boards of SAC, the NMC, and the EDUCAUSE Advisory Committee on Teaching & Learning. Sabean holds an M.S. degree in computer science from the University of Pittsburgh[12] .

3.2.2 General Background

Ken Udas (KU): Before we start the interview, I would like to get a better handle on how eLearning is positioned within UCLA. How much eLearning does UCLA engage in and is eLearning an important part of UCLA's strategic planning?

Ruth Sabean (RS): That depends on how you define eLearning. I think of eLearning relatively broadly. For example, UCLA uses electronic tools throughout instruction, in a manner determined by the individual instructor of each course. The extent of eLearning varies from an enrichment strategy through to being a primary part of the course delivery. Two UCLA academic units provide online master's degrees—an M.S.N. in Nursing Administration and an M.S. in Engineering. University Extension provides an extensive number of online courses in continuing education. But, like many campuses that offer primarily a residential experience, there is a lot of blending of technologies to enhance learning that is primarily classroom-based.

KU: We all know that changing learning-management systems is not a trivial matter. There is risk and cost associated with deployment, but also with course-material migration, faculty development, and training for helpdesk staff, application administrators, and learners. What motivated you to evaluate and change UCLA's learning-management system?

RS: In 2002, UCLA's Faculty Committee on Educational Technology (FCET) expressed concern over the proliferation of "course-management system" solutions in departments, divisions, and schools that required separate logins and made sharing of expertise, materials, new tools, and innovation difficult if not impossible across the campus. After several years of cross-campus collaborative efforts to better link the variety of services, UCLA decided to join the Sakai Educational Partners Program in order to support the Sakai vision and to experiment with open-source solutions and the concept of a common solution on which UCLA might converge. The FCET thought it was important for UCLA to join the national community in order to work collaboratively with others to build tools, as well as to support the vision of a higher-education-defined solution that would support both teaching and research collaboration.

KU: What evaluation and selection methods did you use and why did you select those methods?

RS: The FCET recommended that the common solution be open source. This was endorsed by the IT Planning Board and by CCLE Technical and Functional Sponsor Groups. The Assessment Taskforce

[3] http://www.ucla.edu/
[4] http://moodle.org/
[5] http://sakaiproject.org
[6] http://www.college.ucla.edu/
[7] http://www.oit.ucla.edu/
[8] http://www.cornell.edu/
[9] http://www.educause.edu/
[10] http://net.educause.edu/sac
[11] http://www.nmc.org/
[12] http://www.pitt.edu/

evaluated solutions that met UCLA's requirements and selected Moodle and Sakai to be evaluated in greater depth based on the functional and technical requirements.

Our methodology included doing a fair amount of desktop research to determine what options were available. We referred to Web sites, reports, white papers, and other secondary sources to identify potential systems. As there are dozens of open-source learning management environments, we made a quick cut based on factors such as project viability and maturity; activity within the community; the nature of the technology stack (for example, is the stack open source and are the dependencies open source, is the programming language too obscure?). We were also interested in knowing whether other large-scale production deployments were in existence, the strength and maturity of the development and support community, and if there was adequate support and documentation in English.

Based on this type of general analysis we were able to reduce the field to eight potential systems. We then looked at each system in terms of our meta-criteria and selected Sakai and Moodle as the two solutions we needed to assess in detail. As part of the assessment process, we interviewed institutions that had experience with Sakai and Moodle.

KU: What decision was made?

RS: We selected Moodle. You can find more information about the decision at http://www.oit.ucla.edu/ccle[13] . It is important to note that this decision had two parts. The second was to remain engaged with the higher education community and the Sakai Foundation in order to work on interoperability of Moodle, Sakai, and other CMS/CLE solutions.

KU: What are the relevant dates (start of the selection process, date of selection, projected deployment)?

RS: This is difficult to pin down because the process has been fairly long, starting with the statement of vision in 2002. The latest round of work (by the functional and technical sponsors) started in February 2006 and produced a report in June 2006 that is available on the Web site. The Assessment Taskforce started in July 2006 and delivered their report to the FCET in October 2006. An alpha service will be available for experimentation and testing by early adopters in April 2007, when our spring quarter begins. The speed of implementation will depend on the flow of funds to support this new common service.

KU: Which parts of UCLA does this decision affect (a department, college, the whole university)?

RS: This service will be offered as an opt-in service to faculty and students. Departments, divisions, and schools will make their own choices based on how well the CCLE meets their requirements. We also anticipate that faculty will make individual choices to use some or most of the service features, such as for collaboration. Because faculty will continue to receive their support locally, we will be encouraging academic units to make collective decisions on whether and how extensively to use the CCLE service to ensure that faculty continue to find the support they need easily and that local IT staff do not end up trying to support multiple systems.

3.2.2.1 Comments

10 Responses to "UCLA Selects Open Source Solution, Part 2, Interview with Ruth Sabean"

3.2.2.1.1 1. Heather.Chakiris Says:

March 12th, 2007 at 12:24 pm

Hi, Ruth. It's great of you to make yourself available for our questions. Thanks!

n your interview you explained that UCLA's decision to investigate a new learning management system stemmed from the university's FCET's "concern over the proliferation of 'course-management system' solutions in departments, divisions, and schools that required separate logins and made sharing of expertise, materials, new tools, and innovation difficult if not impossible across the campus." Then later you said that Moodle "will be offered as an opt-in service to faculty and students. Departments, divisions, and schools will make their own choices based on how well the CCLE meets their requirements." If Moodle is opt-in and not a common solution across campus, how does that address the original concern about the "proliferation

[13] http://www.oit.ucla.edu/ccle

of 'course-management system' solutions? Were there a few steps in-between the FCET report in 2002 and the decision that led to Moodle that aren't apparent in the interview?

3.2.2.1.2 2. rsabean - March 13th, 2007 at 9:49 am

Hi Heather, You've put you finger on a really important issue. First some background. The "M" word (Mandate) is seldom used at UCLA — the one exception possibly being legal compliance. Decisions about technology and funding to support those decisions are made at the level of academic units. UCLA's Common Collaboration and Learning Environment will be successful if it has value. Opt-in was a very important aspect of the FCET's vision. They believed that value should be the driver of choice. The buy-in since the decision has been even greater than anticipated. Given the potential for a distributed implementation (a federated architecture with llots of Moodles running in local units), the challenge ahead will be to indeed implement a common experience for the end user. We will provide a common service and anticipate that many academic units will choose to use it, rather than run their own. Others may make that choice later when they have confidence that the common service provides the customization and autonomy they currently value from a locally provided service. Other units may continue to run their own Moodle service. UCLA, in short, has made two big decisions at the same time — Moodle and the provision of a common service.

3.2.2.1.3 3. Ken Udas - March 15th, 2007 at 2:15 pm

Ruth, early in the interview you indicated that your team wants to support the Sakai vision and later you mention that want to work with both Moodle and Sakai. Why is that the case and how do you see that happing? That is, do you see these two communities working together, you contributing to both communities, etc.?

Does any of this have anything to do with the common service model that you mention in your earlier comment?

3.2.2.1.4 4. rsabean - March 15th, 2007 at 6:09 pm

Let me step back and make several separate points. At the risk of trying to speak for a committee, here's my view of the intention of this direction. The focus of the FCET was on 'interoperabilty' by which they primarily meant something like 'if I find or already have a tool that works just the way I want it to, I want to have it work with Moodle.' They were also making a value statement about the big vision of and for Sakai and disliked what seemed to be having to choose between software platforms when what they really wanted to see was a direction that was one notch higher. Third, they wanted to be sure that UCLA was going to stay in synch with what their UC sister campuses and with what other peers (institutions and colleagues) were doing today and would be developing into the future. They rejected the notion that choosing Moodle was walking over a draw-bridge onto a Moodle-only island. The communities to whom we will be able to contribute is a tough question at this point in the process. At the moment, we have a lot to do just to implement our first tier of shared service and getting all the existing functionality working at least as well as it does in our current installations.

Yes, I would hope that we and others can work on practical bridging strategies between Moodle and Sakai and other open-source and proprietary platforms. A lot of good work is being done already to support that vision. We look forward to contributing to that work as we have the expertise and resources to make a contribution.

3.2.2.1.5 5. Ken Udas - March 16th, 2007 at 4:57 am

Ruth, thank you for this. I understand the challenge of not only representing a group decision, but articulating the rationale for one this complex. I am going to take a stab at this also, and if I get it wrong, I welcome input from others who were involved. I made reference, in the second part of this interview, some activities at SUNY that relate to our attempt at selecting a technology platform to support learning. I think

that we were trying to address similar issues that the FCET was at UCLA, but we develop a solution that was rejected internally.

If this is a topic of interest it might be worth referencing two sources. The more palatable of the two is an interview with Pat Masson on "JISC eLearning Forum" titled Developing an SOA at SUNY; Lessons learned, which can be found at http://www.elearning.ac.uk/features/masson[14] . The second source is a little more dense and would require teasing out the relevant points. It is the Technology Strategy Report that was released as part of SLN's Request for Public Comment process. The report can be found at: http://le.suny.edu/sln/rpc/sln2tsr.pdf[15] .

One other resource that puts a lot of context around why we were so focused on a SOA can be found in a posting titled The Long Tail of Learning Applications on e-Literate by Michael Feldstein. As usual, Michael was spot-on.

The following evaluation criteria for our technology selection process were teased out of the work from our task force:

- Strong support for integration of new teaching and learning tools via open standards.
- Student-centric rather than course-centric application design.
- Support for the IMS Learning Design Specification.
- Native interoperability with SUNY's portal environment.
- Strong integration capabilities with campus IT systems.

which were based on the task force's recommendations to:

- Prioritize and emphasize teaching and learning
- Harness the strength and diversity of the SUNY federation
- Plan for tomorrow's campuses

Obviously there is a lot packed into these recommendations and each are explained a bit in the Technology Strategy report. Internally, we debated the relative advantages of Moodle, Sakai, and after a lot of spirited discussion, developed a recommendation based on an SOA using some major components including a portal framework, an authoring and packaging tool, and a suite of teaching, learning, and administration tools, most of which were open source. In the end, this solution was not accepted, nor was Moodle or Sakai.

3.2.2.1.6 6. pmasson - March 16th, 2007 at 6:54 pm

Ruth, Great information!

I suppose I should confess that my interest in this topic extends beyond professional curiosity...

- I spent over ten years at UCLA developing software for medical/dental education, research and patient care,
- While at UCLA, I was involved in numerous evaluations and implementations including, Angle, Moodle, Sakai, WebCT, and even a home grown tool,
- I was involved in a similar process at the SUNY Learning Network (SLN), to identify "the next generation" of teaching and learning for "all of SUNY," where we too narrowed our selection down to Moodle and Sakai.

While at SLN our technical evaluations focused on Service Oriented Architecture for really two reason 1) As a centrally managed service to 40 campuses, we needed to provide for a variety of online teaching styles and institutional objectives, and 2) We wanted to provide a components-based framework that allowed the teaching and learning folks to deploy new tools independently of the "system" based on pedagogical needs. I wonder if these are similar to any of UCLA's requirements?

[14] http://www.elearning.ac.uk/features/masson
[15] http://le.suny.edu/sln/rpc/sln2tsr.pdf

Considering the above, we felt Sakai offered a better architecture. To be accurate, we felt Sakai could provide a better architecture: we had serious concerns about the actual state of development (In fact, while at UCLA, many of the discussions I was in with Sakai focused on the use of uPortal. Unfortunately, in my opinion, SOA and uPortal were abandoned by the time I was working for SUNY).

Of particular interest for us assessing the technology, was not only integration, where tools would present together (an identity management issue), but also interoperability, where information could be exchanged at run time between tools. That is, not only does the Sakai grade book tool and RPI's Bedework calendar (two independently developed tools) present together in the presentation layer (the portal), but when I post a new assignment to the grade book, with a due date, it appears in the calendar. This would allow the teaching and learning professionals to provide "best-in-class" tools without significant development or even re-deployment of another LMS.

I was struck by your comments, "After several years of cross-campus collaborative efforts to better link the variety of services, UCLA decided to join the Sakai Educational Partners Program," and that UCLA wanted to, "remain engaged with the higher education community and the Sakai Foundation in order to work on interoperability of Moodle, Sakai, and other CMS/CLE solutions." To be honest, at SUNY we found that Moodle was not designed with service integration and interoperability in mind, and the Moodle community was not interested in undertaking the development to make SOA possible (although we did feel Moodle was a better designed and developed application with a stronger community).

I am curious if the above considerations were part of the decision making process, how Moodle's technology and architecture was assessed, and how the FCET felt Moodle's architecture provided (or could provide) for the integration of services and interoperability?

Thanks Ruth, and best of luck, Patrick

3.2.2.1.7 7. rsabean - March 17th, 2007 at 5:15 pm

Hi Patrick, I think I touched on some of this in my response to your comment in the other section.

Regarding the assessment of Moodle — just a couple of observations.

- The FCET did not do an architecture assessment. Although some members might have that skill set, most of the faculty on that committee do not. If you're interested in seeing the assessment task force report, I'd be happy to share it with you. Part of that assessment involved discussions with institutions with similar scale of operations who also seemed to be effectively working on these issues. We also spent quite a bit of time talking with people who had chosen the Sakai route to understand what we might be missing.
- Our sense, and I guess time will prove whether we're right, is that Moodle seemed to be implementing standards fairly rapidly and more consistent with the definitions than Sakai at the time we compared them. So even though there were no philosophical statements being made about that, in practice there did seem to be attention being paid in terms of the work being produced.
- It was also our sense that the Moodle community was interested in the practical aspects of interoperability perhaps because so many campuses run Moodle AND something else, even though there was not a lot of discussion of that as a goal.
- We did observe even the 6 months or so that we were working on these choices that Moodle seemed to be learning faster from Sakai than the reserve. Hard to say if that was simply the maturity of the community or the faster pace of development because of various factors, or just that key requirements spread rapidly.

Cheers, Ruth

3.2.2.1.8 8. richardwyles - March 19th, 2007 at 5:47 am

Hi, I don't want to spark any grand debate here but I feel it necessary to rebut Patrick's comments - "at SUNY we found that Moodle was not designed with service integration and interoperability in mind, and the Moodle community was not interested in undertaking the development to make SOA possible". That is quite

an extraordinary statement on two front 1) given Moodle's architecture which is fundamentally about application programming interfaces, and 2) the value judgement on what is a huge and diverse community of users. Firstly the architecture. The M in Moodle stands for Modular. It was most certainly built with interoperability in mind and it was this criteria that helped win the day back in 2004 when we selected it. Follow the link if you want to read our architecture assessment at the time (although being May 2004 it needs updating!) https://eduforge.org/docman/view.php/7/18/LMS%20Technical%20Evaluation%20-%20May04.pdf[16]

Since then we've done many integrations both at the application level and with dataflows, including many beastly student management systems. We've used a variety of web services with Moodle, just recently SRU/SRW creating an interface with the Fedora institutional repository system. Interoperability, open standards and web services is also explict with Moodle's roadmap.

So I struggle to understand how your evaluation cam to these conclusions? I'm also a little curious how a SOA architecture sits with the selection of proprietary Angel?

regards, Richard Wyles

3.2.2.1.9 9. pmasson - March 19th, 2007 at 6:23 pm

Not sure how to respond to this. I don't want to deflect this discussion either (I'm slated to contribute later on, maybe we can pick this up then).

Quickly in context to this discussion,

Our technical goal was to provide teaching and learning components independently of a system. Not really to pick a new LMS. We felt OSS was the best option for doing this. In fact uPortal was to be our "system" with disparate tools presenting depending on the user/course. We felt it would be easier to use Sakai's tools–not Sakai, not Moodle–as independent components. In fact, we actually began with tools developed outside of "core" Sakai: the grade book and test engine, and even another project, the Bedework Calendar.

And how Angel fits into a SOA model (or at least what we were trying to do)? I don't think SUNY cares about SOA (see http://www.elearning.ac.uk/features/masson[17] for the gruesome details). I had nothing to do with the selection of Angel. I would love to know how Angel became the "preferred platform" for SUNY. But I do know that this topic is much bigger than what could be explained here!

3.2.2.1.10 10. Ken Udas - March 21st, 2007 at 5:05 pm

Pat, Richard, Ruth, this seem to illustrate the importance of dialog. Different institutional needs will drive the selection of applications based on a variety of criteria. The methods of achieving interoperability will impact the usefulness of different applications given different requirements and intended uses. The impact here of OSS is the ability to really understand what is under the hood so we can make truly informed decisions that will influence the teaching, learning, and administrative experience. I know that due diligence, which was facilitated by code transparency, happened at the Open Polytechnic and at SUNY with different conclusions and results.

I think too that Richard struck at something with his final question, "I'm also a little curious how a SOA architecture sits with the selection of proprietary Angel?" The quick answer, as Pat indicates, is that it does not. Angel was not selected based on the requirements that guided our recommendations as outlined in the "SLN's Request for Public Comment" document referenced above. So, considerations that lead the evaluation team to an SOA-based solution were taken off the table.

Sometimes all we can do is make recommendations.

[16] https://eduforge.org/docman/view.php/7/18/LMS%20Technical%20Evaluation%20-%20May04.pdf
[17] http://www.elearning.ac.uk/features/masson

3.3 Ruth Sabean Interview - Part 2 - UCLA Selects Open Source Solution[18]

NOTE: Interview with Ruth Sabean conducted by Ken Udas. Originally posted March 12th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

3.3.1 Selection of an Open Source Application

KU: Although increasing numbers of colleges and universities are adopting open-source applications to support their online teaching and learning, there are still a lot of myths about the benefits and challenges of open-source software. What drove you toward considering and selecting an open-source learning-management system?

RS: We looked at this decision as being a lot more than about selecting a technology—it was about a new direction for UCLA. First, it was a commitment to becoming part of a larger community of educators and institutions; second, it was about open source; third, it was about a common toolbox to support teaching, learning, AND collaboration; and fourth, it was about UCLA units and individuals working together to provide a common service that supports rapid innovation. Our goal is to benefit through contributing to and learning from a global partnership that holds values of access and cooperation matching those of UCLA.

KU: What are some of the opportunities or benefits that you see open source providing your program and how are you ensuring that they can be realized?

RS: This is a hard question to answer right now because we are very new to this. As mentioned earlier, we see real opportunity and benefit from working with a global community on an open project that will also work with other open projects (for example, Sakai AND Moodle). We have little interest in being tied to large commercial vendors who are guided by larger market forces that have little to do with UCLA teaching, learning, and collaboration needs. It is our belief that other individuals and institutions that gravitate to open-source communities will share some common set of values. We found that Moodle had a particularly strong, mature, and sustainable community whose culture and processes were consistent with our own.

We are planning on becoming active members of the Moodle community once we have the expertise to provide value back to that community. We think this is a good start to realizing the potential of open source. We are also planning on working with institutions and organizations that share a commitment to interoperability.

KU: What are some of the challenges that you anticipate coming with your selection of an open-source platform and how are you addressing them?

RS: Like a lot of universities, we are fiercely independent at every level—as individuals, as departments, as schools and divisions. It is part of our culture and we have had success with it, seeing it as fundamental to innovation. We have not had a lot of experience collaborating with open-source communities. We have much to learn about being good collaborators internally and externally. Once again, we thought that Moodle was an open community in which we could actively participate.

KU: As you might be aware, the State University of New York[19] (SUNY) just went though a process where they identified a "preferred" LMS vendor. During the evaluation process, all open-source software options were flatly rejected by SUNY System Administration and many of the SUNY campuses. Why do you think that UCLA was willing to select an open-source option? Do you think that UCLA is particularly well positioned to take advantage of the benefits of an open-source application? If so, why?

RS: This is an interesting question. I think that we were at home with the fundamental values of open source, particularly in the instructional arena, where local developers work with faculty to build custom solutions to meet discipline and pedagogical needs. We know that making a good decision about open source is really the same thing as making a good decision about commercial software or any other major investment.

[18] This content is available online at <http://cnx.org/content/m14641/1.8/>.
[19] http://www.suny.edu/

You need to understand your requirements, understand how the software will meet them, and evaluate your options based on those criteria. Open-source and commercial software have different characteristics that you evaluate, but it is all a matter of understanding your own requirements and then exercising some discipline and rigor in your evaluation process. We also learned that you need to understand your institutional culture and technical expertise and evaluate your own capacity to achieve success. Fundamentally we saw opportunity with open source and unacceptable risk with a proprietary option. We have confidence in mature open-source software, a strong community, and our ability to make our choice successful.

KU: What was it that you and the evaluation team really liked about Moodle?

RS: First, it is important to recognize that there are things that we liked about a number of open-source applications including Sakai, and there are things that we saw as disadvantages with Moodle. On the aggregate through, we felt that Moodle was a better choice for us and how we want to leverage the benefits of open source and the community that surrounds a project. We really liked the fact that Moodle was a mature project with a robust community and is a richly featured application. We decided that Moodle could quickly meet many of our teaching, learning, and collaboration needs in its current form and would likely be adopted reasonably quickly by our faculty. We also liked the Moodle community, which functions in part as an established hierarchy, similar to Linux, with the core design group identifying priorities based on suggestions for changes through informal discussion and community contributions. It is active, responsive, and robust. An overview of some of the benefits identified by the evaluation team include rich and stable functionality in the tools most commonly used and valued by instructors, a rich set of administrator tools and user documentation, and a community that has a proven track record of timely bug fixes and development of new features. In addition, UCLA has some experience with Moodle with at least three UCLA units already using it for instruction.

3.3.2 The Future of Open Source Software in Higher Education and of Moodle

KU: Whenever we select critical organization-level software we are thinking about medium- to long-term viability of the technology, organizational costs, lock-in, and other factors that we hope will position us well. With this in mind, where do you see open-source learning-management systems generally and Moodle specifically in five years?

RS: Our choice was focused on selecting the best launching platform for developing a robust environment to support teaching, learning, and collaboration. From what we could directly evaluate and what we could learn from others, Moodle's progress over the past five years indicated that it will remain a stable and responsive technology platform that tracks (and in some cases) leads this application space. For example, new tools appear rapidly; standards are implemented; accessibility, pedagogy, and end-user experience drives design; and it has a global vision and commitment to global education. Our expectation and our intention with a dual focus on interoperability is not that the Sakais and Moodles will merge, but rather that the functionality we need will be best met by combining the best of breed across this application space.

KU: What about other proprietary systems?

RS: It is encouraging to see the engagement of proprietary solutions with initiatives focused on the development and (true) implementation of standards, open API definitions, and an architecture that enables a mix and match of tools.

3.3.3 Experience Sharing

KU: During my last five positions (prior to my current role at Penn State), I was involved with an LMS selection process. I know that there are many institutions considering evaluation processes right now. Do you have any advice for other institutions and colleagues that are contemplating a new LMS?

RS: Think beyond LMS/CMS—think about the faculty experience and the student experience. Understand your faculty-driven usage requirements and your long-term architecture. Be brutally honest about your own culture, funding, expertise, and processes. Focus on the significant differences, particularly those that will be difficult for you to influence, compensate for, or fix. Be prepared to invest fully in making your decision successful.

KU: What were one or two of the big lessons that you and your team learned during the process?

RS: Ask your faculty to drive the process with usage requirements, then ask your IT experts to describe the implementation of those requirements. Bring in some colleagues from peer institutions to help by asking tough questions and providing a different viewpoint. Give your faculty the information they need to make a sound decision. Make your decision a successful one.

3.3.4 Concluding Remarks

RS: It's an old saw, but is once again evident in our experience—the process has been at least as important as the decisions. By the time we reached a decision, we had a community that had built some level of common understanding of why this mattered and what we could achieve together. There are many people I could name as pivotal to the work, beginning with the faculty on the FCET, the participants (and for the staff, their supervisors!) in all of the workgroups and subgroups, the institutions who spent time helping us with the assessment by freely sharing information, and our executive sponsors who continue to advocate for institutional support. We have a long road ahead of us and already another fine group shepherding the process of implementing UCLA's first CCLE. To stay tuned, visit http://www.oit.ucla.edu/ccle[20] .

Thank You

KU: Ruth, first thank you for the time that you put into this interview, your thoughtful responses, and your willingness to share your experiences. I also want to thank Heather Chakiris, who leads the World Campus Advising team, for reviewing the text for clarity. I also want to invite comments and questions to this posting. Ruth has generously agreed to follow this posting and to respond to questions and comments posed as comments to this post.

3.3.4.1 Comments

9 Responses to "UCLA Selects Open Source Solution, Part 2, Interview with Ruth Sabean"

3.3.4.1.1 1. Heather.Chakiris - March 12th, 2007 at 12:36 pm

Ruth, was there an immediate buy-in to the recommendation to pursue an open-source application? Or was there initial push-back that the team had to overcome? If the latter, can you share any strategies/approaches used to make the case for an open-source system? How did the team change the minds of folks who may have at first been apprehensive? Thanks.

3.3.4.1.2 2. rsabean - March 13th, 2007 at 9:35 am

Yes, there was immediate buy-in. Open source was not an issue, possibly because UCLA has a strong and continuing culture of being developers. We have several locally developed CMS and most of our enterprise level applications were developed at UCLA. A primary criteria in the selection process was the ease with which staff and faculty could continue to develop rapidly and integrate tools to meet immediate needs. The challenges that lie ahead are more likely to come from gaining the discipline to develop such that we can continue to take advantage easily of new releases, the work of the global community, etc.

3.3.4.1.3 3. Ken Udas - March 13th, 2007 at 2:15 pm

Ruth, I have been in a number of institutions that like the idea of being able to modify code and update software, but most do not have the skills or history with contributing to an OSS community to do this effectively. While at the Open Polytechnic, we were committed to going Open Source, but we were equally committed to taking advantage of the strengths of a robust community by not forking from the Moodle community. Richard Wyles and his team managed the tensions around working with the Moodle community,

[20] http://www.oit.ucla.edu/ccle

influencing the Moodle development roadmap, and setting appropriate internal expectation at the Open Polytechnic regarding the trade offs between "autonomy" and "community".

Can you share UCLA's position around participating in the Moodle community and meeting institutional requirements?

3.3.4.1.4 4. rsabean - March 13th, 2007 at 3:59 pm

Hi Ken, We have worked out the process regarding donating UC IP back to the community, but I suspect you were referring to what I alluded to in my 9:35am post — although the former is critical to the heart of your question. We are currently too new to the process for me to state a position on this beyond saying that all the discussion to date has been, as it was at the Open Polytechnic, of building with the Moodle community and not taking Moodle some UCLA-centric direction. Certainly the real possibility of multiple Moodles running at UCLA means that attempting to speak with one voice is not realistic. Speaking for the moment for the commonly served Moodle, the vision (and attraction!) was to build with the Moodle community, working out the tensions between autonomy and community that you described.

3.3.4.1.5 5. Heather.Chakiris - March 14th, 2007 at 2:18 pm

Hi, Ruth. A follow-up to my question about buy-in. You explained that "UCLA has a strong and continuing culture of being developers" — and I know you have not spent your entire career at UCLA, so you might not be able to answer this — but do you know if UCLA has always had that "developer" culture? Or was it something that happened over time? If the latter, do you have a sense of how that comfort level came to be? And/Or do you have any guidance for how to cultivate a similar comfort level when it comes to institutions that might be more conservative in their approach to embracing new technologies?

3.3.4.1.6 6. rsabean - March 15th, 2007 at 5:54 pm

Hi Heather, You like to ask tough questions! I suspect UCLA always has — or at least since 1984 which was when I started here — had a development culture. It's not only a technology related culture. I think it stems from a fundamental philosophy that is fairly broadly held — that the essence of UCLA is about faculty innovation in both teaching and research and that the way you sustain that is by placing resources as close to faculty as possible. To give two examples: when server based computing and personal computing both came along — they were needed and, therefore, were funded in local units (sometimes for a faculty member). It's also less about an institution embracing emerging technologies as it is about enabling individuals to discover and follow their own creative directions.

Be careful what you wish for! It is often hard to see the appropriate timing and methods to recognize when what was at first an innovation is now a utility and should be done as a common service, freeing up local IT to move on to supporting the next innovation and, in the process, improving over-all support to faculty and students.

So, no, I don't think it happened over time except perhaps in scope, tracking the steady increase in use of IT in every aspect of the academic mission.

How to cultivate a similar comfort level? put appropriate resources where you want it to happen. If you can do that AND keep faculty and IT staff connected around working on common problems and solutions together while sustaining individual innovation, you'll have achieved the best of both!

Please let me know if I haven't adequately addressed the issues you raised.

3.3.4.1.7 7. Heather.Chakiris - March 16th, 2007 at 2:25 pm

Hi, Ruth. Last question: You live in the Los Angeles area. Can you introduce me to George Clooney?

Just kidding. :-) This is simply a thank you for participating in the series and for making yourself available afterward for questions. I've enjoyed our dialogue. Best of luck with Moodle! Come and visit us at World Campus sometime.

3.3.4.1.8 8. pmasson - March 16th, 2007 at 8:07 pm

Ruth, Too many interesting conversations!!! You mention that there may be multiple Moodles running on campus and that "a primary criteria in the selection process was the ease with which staff and faculty could continue to develop rapidly and integrate tools to meet immediate needs." Can you please expand on this: how will (if at all) the multiple instances of Moodle be integrated and managed? In addition how will other services such as UCLA's student and course information be integrated with both the central and the multiple Moodle instances?

Was this deployment strategy (multiMoolde) a factor in your choice for open source? Obviously OSS provides access for this type of integration, but here in SUNY, Angel is now busily providing multiAngel instance integration and SIS development. SUNY seems more comfortable with Angel providing the development than local development. How was development resourcing evaluated?

Thanks again, Patrick

3.3.4.1.9 9. rsabean - March 17th, 2007 at 5:03 pm

Hi Patrick, The short answer to your first questions: we don't know. We are doing many, many things simultaneously right now. I think there was a general realization that no matter what open source solution was chosen, it was likely that at least some of the academic units might choose to run their own implementation because of the current culture, funding, and practice and the anxiety surrounding potential loss of control. We also thought that a significant number might not choose to run their own and that over time, as we gained experience with and trust in a common service, additional units might shift all or some functionality to the common service, for example, looking to the common service for myMoodle and project sites.

We are just beginning to set up a detailed planning team that will be working on these and other issues, including understanding and evaluating overall architectural options. There has been 100% acceptance of single sign-on as a goal and some level of commonality in look-and-feel. We know that additional functionality is coming in the next release(s) of Moodle. We need to get those installed and see whether they provide the "integrated" solution we need from the end user perspective. A student, for example, at a recent meeting talked about wanting upon login and get a list of all the new activity on all his course and project websites.

I'm not quite sure what you mean by "development resourcing". Here's one take on it: We have a fleet of distributed developers, intended to request some level of core funding for full-time developers who could work off community-set priorities in collaboration with the distributed developers, and the very robust Moodle community of developers. The maturity of Moodle and its community also convinced us that although our use cases went beyond what was available last fall. we were likely not to face the types of costs some units had experienced with requesting new functionality from vendors of proprietary systems.

We're also looking to join a community of schools, organizations, and individuals who want to work on interoperability so that migrating tools among systems is not the recoding effort it is today. We know, already, that there are tools or functions in Sakai we want, for example, not to mention those in our own campus systems that need to be brought over to Moodle.

Please let me know if this does not address your questions adequately. Ruth

3.4 Summary[21]

3.4.1 Ruth Saban Interview Summary

The first installment in the Impact of Open Source Software Series was an interview with Ruth Sabean, assistant vice provost for educational technology in UCLA's College of Letters and Science and director of educational technology in the university's Office of Information Technology. We discussed UCLA's adoption of Moodle. Some of the major points and themes of the interview included:

[21] This content is available online at <http://cnx.org/content/m14645/1.6/>.

- The prime mover for UCLA's decision to evaluate and select a new learning management environment was to help provide a common infrastructure to promote sharing and innovation across units at UCLA. The selected technology was offered on an opt-in basis for academic units.
- The process started with a commitment to adopting an Open Source technology and the field of applications was quickly reduced to Moodle and Sakai
- UCLA committed to Open Source because they wanted to benefit through contributing to and learning from a global partnership that holds values of access and cooperation matching those of UCLA.
- UCLA had little interest in being tied to large commercial vendors who are guided by larger market forces that have little to do with UCLA teaching, learning, and collaboration needs.
- UCLA fully anticipates contributing actively to the Moodle community and to the larger dialog around interoperability.
- Ruth saw some of the challenges to contributing to Moodle as UCLA's independent streak and lack of experience contributing to an Open Source community, but felt that Moodle was an inviting community.
- Ruth indicated that when making a good decision about Open Source or commercial software, you need to understand your requirements, understand how the software will meet them, and evaluate your options based on those criteria.
- Although Sakai and Moodle had both advantages and disadvantages, it was product maturity, community strength, and progress during the past 5 years, that swayed the evaluation committee to select Moodle.
- Ruth suggested that some of the most important factors in a successful evaluation and selection process is to really understand your organization, have faculty drive the process, and actively seek feedback from colleagues at other institutions.

There were a number of comments and responses made during the days following Ruth's post. There were at least two central themes that were generated from the comments.

1. There was a fair amount of discussion about some of the perceived trade-offs between Sakai and Moodle and a larger set of issues about the potential for a service-oriented architecture sitting at the center of a learning management environment. The UCLA and SUNY experience suggested that at least conceptually Sakai offered a fair amount of promise for tool interoperability, but that it failed to deliver in some critical ways and lacked much of the community involvement that is one of the remarkable achievements of Moodle. Some discussion about Moodle's architectural flexibility was offered during the dialog. The discussion rests within the context of universities seeking a learning environment that best meets the needs of teachers and learners within unique contexts.
2. There was a second theme that focused on cultural acceptance of Open Source software within UCLA and UCLA's interest in and ability to contribute to the Moodle community

Chapter 4

OSS and Infrastructure for NZ's Education System (Richard Wyles)

4.1 Introduction - Richard Wyles[1]

4.1.1 Richard Wyles - Introduction

Figure 4.1

Richard's OSS series contribution focused around innovation for education and the infrastructure of New Zealand's education system.

Richard Wyles is a director and co-founder of Flexible Learning Network[2] Ltd, a private company focused on flexible learning solutions for the education, corporate training and public sectors. For the past four years Richard has been leading national eLearning infrastructure projects in New Zealand, underpinned by open

[1] This content is available online at <http://cnx.org/content/m14642/1.6/>.
[2] http://www.flexible.co.nz/

source and particularly Moodle[3] . A full-time development team, now numbering around 10 programmers has been working continuously on Moodle and related open source projects since May 2004. Within a short period of time, Moodle is now the most widely used Learning Management System in New Zealand, particularly in the post-secondary vocational educational sector and increasingly within government sector departments.

To coordinate these efforts and provide a place for stakeholders to contribute, Richard co-founded Eduforge[4] . He currently leads several NZ Government funded projects including piloting a national eLearning Network in New Zealand - this work has led to a single-sign-on framework or Moodle Networks, and the NZ Open Educational Resources project.

4.2 Innovation for Education: OSS and Infrastructure for NZ's Education System[5]

NOTE: Author - Richard Wyles, Innovation for Education: OSS and Infrastructure for NZ's Education System. Originally submitted March 21st, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

4.2.1

The saying goes that necessity is the mother of invention. Innovation is somewhat different, it can be incremental improvements, a new way of using something, or the thinking that underpins radical invention. When it comes to innovation there's two quite distinct drivers. One is the norm in the proprietary software world - that is supplier side innovation. To differentiate a product a supplier will spend on R&D and commercialise and often protect their innovations with patent law. While this model is reasonably efficient in open competitive markets, a significant problem remains in that it largely ignores end-user or demand-side innovation. I say largely because any successful proprietary software vendor, will of course, take demand signals such as customer feedback into account when designing new releases. The problems are that there are time lags, inefficiencies in communication flow and inherent prioritisation of resources that ignores both niche and emergent need (e.g. Does Blackboard have a Maori[6] language pack?). Patents are also designed to limit the diffusion of innovation and thereby protect the competitive advantage that the innovation provides. Problems drive innovation!

Thinking back to 2003 when I first started getting involved in elearning technology, there was a recognised problem in New Zealand's education system. eLearning was very unevenly spread and quite understandably. New Zealand is reasonably large in geographical terms - a little bit larger than Britain. However, the population is small at 4 million people and we're geographically isolated - the distance between Wellington and Sydney is not too far off the distance between London and Moscow. It's a developed Western nation but unusually the economy is largely reliant on agricultural exports. The education sector is well served with 7 universities, 20 institutes of technology and polytechnics, 3 wananga [7] plus many smaller private training companies. Many of the polytechnics are regionally based, serving smaller more rural population centres.

[3] http://moodle.org/
[4] http://eduforge.org/
[5] This content is available online at <http://cnx.org/content/m14647/1.7/>.
[6] http://en.wikipedia.org/wiki/Maori
[7] http://en.wikipedia.org/wiki/Wananga

Map depicting LMS market in NZ in 2003

Figure 4.2

In 2003 there wasn't a lot of eLearning infrastructure. With an initial consortium of 8 institutions, and a modest amount of government funding (given our goals), we started the New Zealand Open Source Virtual Learning Environment[8] (NZOSVLE) project. Our first recognisable problem was that this project was going to be very hard to manage without some suitable tools to help. After looking about, finding nothing at that time that solved the problem and thinking our need can't be unique, we came up with the idea of Eduforge[9] . Eduforge delivers the same services as does Sourceforge but with some additional collaboration and communication tools such as project based blogging and wikis. We've endeavoured to support the needs of both technologists and others in the education community that may be less technically focused. Indeed, there are many projects hosted on Eduforge that have little to do with software. Eduforge is an open access environment - it is not aligned to any institution, it is free to use and has projects from throughout the world. Eduforge could be described as an accidental outcome of the NZOSVLE project. We've made some improvements since first launching in February 2004 and we'll keep evolving the platform. As a trivial aside, Eduforge is now hosted at a data centre in Dallas, Texas to reduce latency for users in many parts of the world.

[8] http://pcf4.dec.uwi.edu/viewpaper.php?id=81
[9] http://www.eduforge.org/

Figure 4.3

In parallel to the work on Eduforge, we needed to start designing the Virtual Learning Environment (VLE). In was vital to establish some core principles to guide our efforts. Firstly, we weren't going to fall into the "not invented here" trap. A Learning Management System (LMS) was a natural starting point to the VLE and there were numerous open source options in varying states of maturity. We would select the most promising and focus our resources there. We would not fork the code because, with limited resources, a New Zealand fork would only prove to be more expensive to maintain over time. We would be good open source "citizens". We were constantly thinking, "will this code get upstream?"

So our selection process included not just the qualities of the architecture and code, important though it is. We were also looking for a good community model to apply our time, energy and resources. Though, of course somewhat dated now, this process was documented: Shortlisting of LMS[10] , Evaluation Part II[11] (focused on pedagogical aspects) and Technical Evaluation[12] . The process took a full 5 months with Moodle[13] selected in May 2004.

In hindsight that decision looks relatively easy but at the time there were no clear leaders. Sakai[14] was only just getting underway, ATutor[15] was brand new, Ilias[16] looked interesting as they had made some headway with SCORM[17] compliance but a small user base, and Moodle had a user base of around 350 installations but no enterprise scale installations. Indeed, without some work, Moodle wouldn't scale to meet our requirements. We weren't at all concerned about ticking boxes on the features list. We wanted a

[10] https://eduforge.org/docman/view.php/7/7/Shortlisting%20of%20LMS.pdf
[11] https://eduforge.org/docman/view.php/7/17/Evaluation%20of%20LMS%20-%20Part%20II.pdf
[12] https://eduforge.org/docman/view.php/7/18/LMS%20Technical%20Evaluation%20-%20May04.pdf
[13] http://moodle.org/
[14] http://sakaiproject.org/
[15] http://www.atutor.ca/
[16] http://www.ilias.de/ios/index-e.html
[17] http://en.wikipedia.org/wiki/SCORM

robust architecture and a responsive open community.

That first year saw a huge amount of effort in improving the scalability and security of Moodle with Moodle 1.5 being what I'd describe as the first truly enterprise ready open source LMS. There were nervous moments launching Moodle at the Open Polytechnic of New Zealand[18] , with its 35,000 learners and we were doing a hard cutover from an in-house system and a gnarly legacy student records system complicated matters. I did the classic project manager's trick of being far away in Washington DC on launch day, November 1, 2004.

Since then we've continued to devote development efforts to Moodle, but now much more into the feature-set and interoperability aspects with other components of the VLE. Our recent efforts have been on developing Moodle Networks coming out as standard in 1.8.Moodle Networks allows a networked framework of multiple Moodles where users can roam across, using comprehensive Single sign-on[19] (SSO) and transparent remote enrollments. Administrators at the originating Moodle install can see logs of remote activity. You can also run your Moodle in "Hub" mode where any Moodle install can connect and users roam across. The Moodle Network code includes an XML-RPC[20] call dispatcher that can expose the whole Moodle API to trusted hosts.

Why did we do this? Again it is to solve a problem. As stated above, many of our institutions are relatively small, serving small remote populations. To ensure broad access to educational opportunities, cross institutional networking of delivery solves student access as well as economies of scale for the institution. The power of the network rests at the node - by that I mean each institution can quite easily configure their Moodle to network specific courses and enroll some students but not others. Institution A may provide say viticulture to Institution B students but not C etc etc. Authentication is managed, as it currently is, via each enrolling institution. The power of this flexible framework will take a bit of time to unfold as it takes some time to establish the non-technical arrangements of such a network.

Concurrently, we've been working on a new ePortfolio system. This is a bit of a departure for us because my preference is to build upon existing code-bases than start from scratch. We had been doing some work with Elgg[21] but we got confronted with a design problem in that we couldn't address the requirements of all the stakeholders in an ePortfolio system with the current architectures available. Mahara [22] (Maori for thought or reflection) deals with this by having an Artifact, Views (templates to group artifacts) and Communities framework. The user can set the permissions on which communities can have access to which views. Still early days on this but we're very excited by the potential with Mahara. Multiple institutions are using a shared instance at MyPortfolio.ac.nz[23] and that in itself is very rewarding as that level of collaboration would not have been possible only a year or two ago. You can learn more about Mahara by viewing the documents[24] and we will have a demonstrator up soon. Naturally rich interoperability with Moodle is part of the plan and is currently in development.

Another key part of the VLE is a national network of repositories, both for courseware and research output. This is more recent work but we followed the same successful process when selecting the LMS. The technical review[25] pointed to using Fedora[26] for the OAI-PMH national hub and hosted solution while, with some work, Eprints[27] is a good option for ease of deployment at individual institutions. Enhancements we've been making include RSS feeds from Fedora, ratings, add comments, nested collections, a DIY[28] configuration tool for Eprints, and a SRW/U [29] service to be adapted for Fedora which will become the basis

[18] http://www.openpolytechnic.ac.nz/
[19] http://en.wikipedia.org/wiki/Single_sign-on
[20] http://en.wikipedia.org/wiki/XML-RPC
[21] http://www.elgg.org/
[22] https://eduforge.org/projects/mahara/
[23] http://www.myportfolio.ac.nz/
[24] https://eduforge.org/docman/?group_id=176
[25] https://eduforge.org/docman/view.php/131/1062/Repository%20Evaluation%20Document.pdf
[26] http://www.fedora.info/
[27] http://www.eprints.org/
[28] http://en.wikipedia.org/wiki/DIY
[29] http://en.wikipedia.org/wiki/Search/Retrieve_Web_Service

of the web front end search on the hub and is adaptable for the likes of FEZ[30] and Moodle. I'm probably getting a bit technical here but the idea is to harvest all of NZ's research output and make it more easily accessible. In parallel we want courseware repositories to be accessible to tutors/teachers/ instructional designers with easy federated search at the course set-up level.

With leads me on to our work on open educational resources but that's a whole other story...

In summary, what I'm trying to convey with this post is that we've been quite busy building what amounts to some significant national infrastructure for NZ's education system. I like to think that our innovation is end-user / demand driven which is made possible by working with open source technologies. And because it's open source we can leverage the innovations of others and vice versa.

Our team at Catalyst[31] , the Flexible Learning Network[32] , and consortium partners in the education sector such as the Open Polytechnic[33] are committed to the open source paradigm. It solves a lot of problems for us. When working with open source solutions, the playing field becomes a lot more level as the aggregation of capital is not such of a factor - ideas and capability become the new currency. And for end-users we can deliver innovations and some fit-for-purpose outcomes not otherwise possible. A small but cogent example is that Moodle now has Maori, Tongan and Samoan language packs - important for our native Pacific Island communities. Which proprietary LMS can boast that?

4.2.1.1 Comments

14 Responses to "Innovation for Education - OSS and Infrastructure for NZ's Education System"

4.2.1.1.1 1. Ken Udas - March 21st, 2007 at 5:18 pm

Richard, I might as well kick things off. I notice from your 2003 and 2006 (before and after) graphics that the number of LMS deployments grew from 11 in 2003 to 18 in 2006. Do you think that the increased total number of deployments was a consequence of the general growth of online learning globally? That is, do you think that the growth was independent of the New Zealand Open Source Virtual Learning Environment (NZOSVLE) project? Why?

4.2.1.1.2 2. richardwyles - March 21st, 2007 at 11:23 pm

Hi Ken. Actually I'm sure the graphics are a little inaccurate - there's more Moodles! The maps represent what is called the 'institute of technology and polytechnic sector' in New Zealand. Certainly there's been global growth in online learning over this time period. The problem we faced was that some were being left behind - a digital divide was quite clear between new Zealand's larger institutions and the smaller regional ones. Even those institutions who were investing tended to stop at the Blackboard Basic edition rather than the full suite.

To answer this properly it's worth quoting from one of our project partners on how the NZOSVLE lowered the barriers to entry. Overall, in the first year or so, we saw the "have-nots" becoming "haves" as they adopted production level LMSs. More recently we're seeing a lot of migration from the likes of Blackboard and WebCT to Moodle.

"Nelson Marlborough Institute of Technology (NMIT) is a regional Polytechnic serving a rapidly growing but widely dispersed population across the top of the South Island. This geographic spread combined with some of the highest levels of employment in the country provides significant challenges for NMIT in maintaining our viability and relevancy. A project was established in 2003 to select and implement a commercial Learning Management System to support the flexible access to learning materials. However, up-front costs of hardware, license and local technical support proved too great a barrier in difficult financial times and we lacked experience or confidence in utilising Open Source systems.

[30] http://en.wikipedia.org/wiki/FEZ_(Software)
[31] http://www.catalyst.net.nz/
[32] http://www.flexible.co.nz/
[33] http://www.openpolytechnic.ac.nz/

The advent of the NZOSVLE project has changed all this. Moodle is a highly functional, stable and relatively intuitive LMS compared to many of the commercial products. An external service provider now hosts our installation of Moodle and the quality of the support available via the NZOSVLE project and the wider Moodle user community has been outstanding. Rather than pay for expensive hardware and license fees, a greater percentage of available funds have been able to be used to establish an internal support team. The Flexible Learning team is now working on a number of online development projects and supporting a growing number of teaching staff as they explore utilising Moodle to enhance their current classroom-based courses.

NMIT looks forward to utilising this and other systems to better meet the learning needs of our communities. Where possible we will continue to support the use and development of Open Source systems in NZ education."

David Sturrock, Flexible Learning Team Leader, Nelson Marlborough Institute of Technology

4.2.1.1.3 3. richardwyles - March 22nd, 2007 at 9:40 pm

Sorry to cross-post comments here but to pick up on the thread we had earlier about interoperability, SOAs etc. then I suspect Patrick and my philosophies are actually quite well aligned. To illustrate, have a look at the conceptual diagrams used in our proposals back in 2003 and then again in 2004:

https://eduforge.org/docman/view.php/7/1296/NZOSVLE.jpg [34]

https://eduforge.org/docman/view.php/7/462/OSVLEII.jpg [35]

While I didn't know the jargon for SOAs back in 2003, the concept of separating out the feature-set was very firmly in our mind. And I think we made some good decisions. I believe that Moodle is a route to the same end. At present Moodle can be described as a cohesive LMS. But the architecture does adhere to good principles of "loose coupling". I believe Moodle will evolve into a form of 'LMS operating system' for want of a better descriptive title. By this I mean there will be a framework using web services communicating with a "core operating system" to achieve very flexible configurations. I haven't caught up with Martin Dougiamas since mid last year but will be in a month's time and the evolution of Moodle is always a topic of discussion!

4.2.1.1.4 4. Ken Udas - March 23rd, 2007 at 6:07 am

Richard, thank you for the response relating to the growth of LMS deployments and the role that the NZOSVLE project had in reducing participation barriers for eLearning (particularly in financially fragile institutions). Were there any other outcomes that flowed from the project and the use of OSS?

That is, did you note additional inter-institutional collaboration around other features of eLearning? You referred to the original group of 8 institutions that participated in the NZOSVLE project as a "consortium" which seems to infer collaboration. Is this true, and if so, was the collaboration confined to deploying and maintaining learning technologies? I am probing to see if you saw "secondary" impact on the sector or at least among the participating institutions.

I have a follow-up question already, but will wait for this response first.

4.2.1.1.5 5. richardwyles - March 23rd, 2007 at 6:54 pm

It's hard to quantify but certainly, in the same way that if you build a road you will get cars on it, we noticed and were gratified by the upswing in elearning activity due to enabling the foundational infrastructure. Due to this, there has been some significant inter-institutional collaboration however I must qualify that because much of it has been more informal, ad hoc and across middle layers between faculties, eLearning managers, instructional designers etc.

So, while there has been a secondary impact, it could be much more so from my viewpoint if there was a more strategic framework to support it. In many ways, our efforts have been very much "bottom up"and I suspect most Chief Executives and Academic Managers are not fully aware of the potential of what we've

[34] https://eduforge.org/docman/view.php/7/1296/NZOSVLE.jpg%20

[35] https://eduforge.org/docman/view.php/7/462/OSVLEII.jpg%20

been doing. That's understandable, the power of Web 2.0 and networked environments are foreign to many people's working lives (currently!). We are endeavouring to encourage the direction towards more meaningful collaboration with the Moodle Networks project which I'm very excited about. And, while the wheels of bureaucracy naturally turn http://www.flexible.co.nz[36] slowly, the drivers behind networked education and inter-institutional collaboration are inescapable. We will see much more tangible evidence of the evolution of this framework over 2007 and into 2008.

There has been another secondary impact that I'd like to mention, and this is due, in part, to my new business venture, the Flexible Learning Network (http://www.flexible.co.nz[37]). Working with our technology partners at Catalyst, we're successfully rolling out OSS infrastructure beyond the education sector. Large sections of the government sector are now adopting Moodle including New Zealand's Ministry of Social Development, Department of Labour, Inland Revenue Department (tax agency) etc. And we're seeing signs of inter-organisational collaboration at this level too.

Looking back, and writing these posts, has helped me reflect on what's been achieved but it still feels like there's some mountains to climb. We're still at the early stages really...

4.2.1.1.6 6. Ken Udas – March 24th, 2007 at 8:22 am

Richard, now I have two follow-up questions. I will first ask the question that relates to your last comment. How does the Flexible Learning Network fit into the larger free software and education ecosystem? Do you see organizations like the Flexible Learning Network supporting an economic model for the growth and development of particular OSS applications, and does this type of model support the more general development of OSS and/or magnify the impact of OSS in education? Is this model substantively different from the "dot com" support service entities that support many OSS applications like Moodle, Linux, LAMS, etc.

Please, is you are reading along and have a question, do not let me dominate this dialog. Please feel fee to post a general comment, question, or provide some feedback.

4.2.1.1.7 7. richardwyles - March 24th, 2007 at 3:50 pm

Flexible Learning Network was formed to focus on strategy, learning design, content development, training and coaching. So, with our service streams we are different to the likes of Moodle.com, LAMS Foundation or something like RedHat Linux because we're focused on good practice use of a range of tools - we're not tool specific. In fact we have clients that use proprietary applications.

We still work on infrastructure but more in an advisory or project management capacities (and the bigger the project the better ;-) . For example, recently we've been consulting for a global shipping company which operates out of over 50 countries but has their headquarters in Dubai. They're in the process of setting up a corporate academy and I'm finding this departure from traditional educational structures interesting. In these types of roles naturally we strongly advise towards the benefits of OSS. Flexible Learning is an associate company of Catalyst IT which is a specialist OSS services company with about 75 programmers all working on open source. Working closely with them is a major point of difference for us. For example, we know that we have really strong expertise in enterprise Moodle, Fedora, Eprints, Mahara and then a whole host of other OSS systems and technologies for any customised developments that can form part of the solution suite. Combined, the two companies can deliver a very comprehensive service offering (sales hat firmly on here ;-)

And in the example above, our work has a natural progression from initial strategic consulting towards design and development of exemplar courses, knowledge transfer to their staff, online coaching of e-tutors for the first course roll-outs - in short setting the foundations for a successful venture.

I would also like to add that, consistent with our strong advocacy and work with OSS, is our work and preference towards Open Educational Resources on the content side. It's not always possible because it's the client's perogative, but the cross-pollination of design methodologies is something we're finding beneficial.

[36] http://www.flexible.co.nz/
[37] http://www.flexible.co.nz/

Despite the high profile projects from MIT and OUUK we don't see many examples of purpose built OERS (as opposed to 'after the fact' opening) with the goal of ease of editing, extension and reuse. One trend is towards wikis and this is an important element but not the silver bullet. Wiki syntax is still arcane to many and wikis don't deliver all the learning activities teachers and learners expect. I expect a suite of OER tools to soon develop as there's certainly an itch...eXe is an example of this direction

4.2.1.1.8 8. Ken Udas - March 25th, 2007 at 6:49 pm

Richard, I want to go in another direction for a minute. I see how the NZOSVLE project reduced barriers to deploying eLeaning technology infrastructure (Moodle), which of course is a capacity building activity, but did you see evidence of capacity building in any of the participating institutions in terms of contributing to the open source community? That is, was there evidence that any of the schools learned how to contribute effectively to Moodle or any other OSS project?

I ask this because virtually every institution that is considering adopting an OSS learning management system talks about the potential benefit of modifying the code, which is probably one of the more challenging ways of contributing to a community. Did anybody develop competency and contribute code, documentation, training materials, etc., or at least become active in the forums or take leadership in any other way?

4.2.1.1.9 9. richardwyles - March 25th, 2007 at 7:19 pm

Yes, although naturally not in a uniform manner. This appears to be dependent on individuals and the orientation of an institution. Right at the outset, we formed the view that even if you selected the right platform, enhanced the code, provided good documentation, professional development training etc. then there would remain some barriers to entry, perceived or otherwise. The context was that there was little eLearning infrastructure being supported to begin with. For others, they could be supporting say BlackBoard in a hosting sense and while they obviously had an IT department, their skill-sets were not in supporting LAMP or OSS in general let alone contributing code of sufficient quality to the community. There are thankfully some exceptions but this was the general context in the New Zealand setting, remembering that many of our institutions are relatively small.

The solution was to provide economies of scale in hosting and support through a bureau service. We purchased high end hardware and set up an educational web hosting facility. Seven institutions now have their production LMS on a 'common services' infrastructure based in Wellington with disaster recovery systems in Auckland. We're doing a similar thing with the Mahara ePortfolio system and our national network of institutional repositories. So, while some host themselves and have built capacity internally, others opt for a simple turn-key solution.

So, with that, the capacity building and expertise has consolidated around a clever team based at Catalyst IT, which have one of the biggest teams of Moodle expertise and OSS in general, globally. Catalyst has 75 developers specialising in OSS - this provides the level of commercial assurance that senior managers often need to make the switch to OSS.

4.2.1.1.10 10. Ken Udas - March 28th, 2007 at 4:44 am

Just as a little follow-up observation, I recall that there was a flurry of activity that followed the NZOSVLE project that I felt was relatively promising. These included the development and sharing of training materials and activities among some of the project partners and that the first NZ Moodle Moot leveraged the growing popularity of Moodle, but perhaps more importantly the growing understanding and acceptance of OSS in the sector.

Also I remember that a school oriented Moodle community was launched called Schoodle (http://schools.elearning.ac.nz/moodle/[38]), which seems to have had some impact on the primary and secondary education sector. The project is self described as being "...committed to gain wide acceptance of Open Source Initiatives within New Zealand. This site has been created to allow teachers the opportunity

[38] http://schools.elearning.ac.nz/moodle/

to make informed choices on the issues surrounding the creation, maintenance and financing of digital learning environments within schools.", which suggests that the Moodle focus can be translated into the larger potential of open source and community-based activities.

4.2.1.1.11 11. Ken Udas - March 29th, 2007 at 6:38 am

Here is one last question. This is sort of an open question for Richard, but if there is anybody following along with this who is in the know (or has an opinion), please feel free to contribute. In your posting you referred to a "...modest amount of government funding (given our goals)..." relative to the NZOSVLE project. Could you take just a moment to describe the government funding and its impact on the education sector? I am interested in learning a bit more about the potential connections between the government policy, their supporting programmes, and their effectiveness. All in all, would consider the NZ government investment that you referred to as a good investment? If so, what made it a good investment?

4.2.1.1.12 12. richardwyles - March 29th, 2007 at 4:46 pm

In 2003, the New Zealand Government established a pool of funding, to be administered by the Tertiary Education Commission (TEC), for eLearning capability development initiatives. This fund was called the e-Learning Collaborative Development Fund (eCDF) and was a contestable fundavailable to New Zealand tertiary education organisations. I say that our funding was modest given the objectives, because as with manygovernment funding mechanisms anywhere there can be a tendency to spread the allocations as broadly as possible among the various constituencies.

Thank-fully, TEC had a pre-determined viewpoint that OSS was worth exploring further with the objective of increasing the uptake of e-learning. In particular the eCDF sought to encourage a consolidated approach of tertiary education organisations sharing e-learning costs and systems where this is more efficient than individual organisations replicating investment. When reading the terms of reference in the funding documents, it was very obvious to us that OSS was a good fit although we were thinking in that direction anyway.

NZOSVLE was not the only OSS project funded. eXe, which I'm sure Wayne MacKintosh will discuss later. NZOSVLE also worked closely with the Open Source Courseware Initiative in NZ team who were undertaking language pack translations for Moodle. In subsequent rounds, TEC funded the OS Learning Object Repository project, the Open Access Repositories in New Zealand, and the Mahara ePortfolio. Eduforge also came about due to the eCDF. So, OSS has been a very significant theme and I'm forever grateful that TEC created this opportunity to establish OSS as such a large part of the landscape here.

It's inherent with any such fund that some of the dollars get swallowed up in items such as University overheads, ideas that "seemed good at the time" etc. but I'm really happy to say that the overheads for NZOSVLE were kept at a minimum and that we've had a really high success rate with getting quality code upstream into standard releases. For this, and making many of these projects the success they are, BIG thanks to Penny Leach, Martin Langhoff and the rest of the programming team for their massive input, much of it in their own time such has been their passion for what we're doing.

So, a good team was crucial to making it a good investment, having sound project principles, clear goals and vision. These are the things that make for successful projects. There's one other critical element that made a relatively small investment deliver such a wide ranging impact. Good timing, e.g. Sandy Britain and Oleg Liber's work on the pedagogy of LMSs, the options and growing maturity of OSS LMSs, the demand for infrastructure in the sector...a worldwide growing interest in OSS for education. Similarly the recent work on Mahara. I think this is good timing, we need options for OSS ePortfolio systems and I believe what we're trying to do with Mahara will resonate, early days but we're focused on getting the foundations right.

Thanks Ken for the discussion, and of course for the shared vision and many lunchtime walks we had when you were here in New Zealand and we were setting up NZOSVLE and Eduforge. It has been a very rewarding experience working with OSS in education these past four years and I feel we're still at the beginning - there's so much to do!

Cheers Richard Wyles

4.2.1.1.13 13. pmasson - March 31st, 2007 at 5:02 pm

Sorry for the late post...

...I hope there is still time to ask a question.

I am very interested in the recent efforts on developing "Moodle Networks." While at SUNY one of our challenges was to provide integration between the LMS and the 40 or so disparate Student Information Systems (I believe that's Student Management Systems in NZ?). Campuses where running Datatel,Sungard Banner, PeopleSoft and even home grown systems. The requirement to us was a single interface where any campus could push student and course information to the LMS to create and populate courses, then provide the SIS with course completion, grades, etc. on the way out. Added to this complexity was that each campus had its own unique ID's for students and faculty and course/section nomenclature. SUNY's legacy LMS evolved to include its own SIS, causing, for example, students who used the system to not only enroll in their own campus and course, but enroll again within the SUNY system's LMS–basically double registration. This obviously caused problems with data integrity between the two systems as students added/dropped, enrolled in the wrong course or sections, etc.

This requirement, a common integration interface across SUNY, was considered a must have, yet we could not find an example of any campus or system that had accomplished this in the U.S. Finally we came across a project out of the UK, SUNIWE (http://www.jisc.ac.uk/whatwedo/programmes/programme_edistributed/suniwe.aspx[39]), where cross-campus enrollment was being developed with uPortal. Based on the activity between uPortal and Sakai, we initially thought we may have found a solution. Unfortunately the uPortal/Sakai collaboration proved less than we had hoped.

In addition, SUNY's technology decisions where moved out from the LMS and technology groups and made by very senior administration. This group was very uncomfortable with any OSS (this will be the topic of my post) and a commercial provider, Angel, was chosen despite both the technical and university system architectural issues. Angel is now expected to provide (build) this single interface for disparate SIS' or, perhaps this requirement is no longer considered vital.

Can you please provide more information regarding the "Moodle Networks?" How similar are the campuses that will be contributing courses, sharing students, etc. Do they all share an SIS (SMS)–ether a single instance or at least the same application, student ID's, course/section ID's.

Thanks, Patrick

4.2.1.1.14 14. richardwyles - March 31st, 2007 at 5:55 pm

Hi Patrick, We've got a very similar problem here, lots of disparate SIS. When looking at this seemingly mammoth task, I took a KISS approach which effectively sidelines (perhaps ignores!) the issue. Based on the assumption that students in their institutional LMS have already been authenticated via some means (gnarly SIS or otherwise) we built the authentication federation layer to be between LMSs. Each node of Moodle Networks is enabled to allow students form another node in, down to a student or course level. You can set your Moodle to Hub mode as well which would allow any other node to have a trust relationship with it. Reports are transferred to the host Moodle so that if these subsequently transfer back into a SIS that's accommodated. In essence we're extending the classic SIS-LMS relationship to being SIS-LMS + trusted friends and thereby abstracting away the problem of SIS interoperability.

The network is conceived so that the student's access is through their own institutional gateway - their LMS. naturally, this doesn't solve all the organisational issues such as John Smith wants to take Viticulture 101 from 3rd party provider. These issues can only be solved with cross-credentialing frameworks and all the people issues, but if achieved then Viticulture 101 would be an offering by Institution A (and thereby exist in their SIS) even though it is actually provided by Institution B. We're trying to develop a distributed network system (with low requirements for governance overhead) rather than a hub and spoke model.

While the technology side had a few challenges, relative to moving the hearts and minds, it's the easy part. However, by enabling some possibilities I'm sure some interesting configurations will eventuate and

[39] http://www.jisc.ac.uk/whatwedo/programmes/programme_edistributed/suniwe.aspx

many that we didn't envisage. The inclusion of a pan-institutional learner-driven ePortfolio system (also with federated authentication) adds to the potential of networked learning opportunities.

cheers, Richard

4.3 Summary[40]

4.3.1 Summary - Innovation for Education - OSS and Infrastructure for NZ's Education System

The second installment of The Impact of Open Source Software Series, Innovation for Education - OSS and Infrastructure for NZ's Education System, was posted on March 21, 2007 by Richard Wyles. Richard's article provided an overview of the New Zealand Open Source Virtual Learning Environment (NZOSVLE) project, which was launched in earnest in early 2004 and other capacity building activities within the New Zealand tertiary education environment. The posting highlighted the evaluation process that led to the selection of Moodle as the learning management system for the project, the genesis of Eduforge as infrastructure to support multi-institutional collaboration on the project, the contributions made to Moodle in preparation for deployment in New Zealand, and subsequent work.

The NZOSVLE project has lead to additional work in open source software that meets needs within the context of the New Zealand education sector, which is comprised of a variety of institutions with varying degrees of financial resources. The posting illustrates the impact of open source infrastructure on lowering financial and organizational barriers to entry into eLearning for institutional throughout New Zealand. As a minor example, he cites the development of Maori, Tongan, and Samoan language packs in Moodle as important developments supporting native Pacific Island communities.

There were a number of comments and responses made during the days following Richard's post. There were at least three central themes that were generated from the comments.

1. Although OSS can reduce financial barriers to entry for new online learning providers, the NZOSVLE project further reduced the skills and knowledge barriers of evaluating, selecting, and deploying an appropriate platform and managing the software after it is deployed.
2. Although Richard had seen some secondary impact on the education sector that can be traced back to the introduction to OSS and the NZOSVLE project, in Richard's opinion they were probably not as profound as they might have been if there was a more strategic framework put in place. Much of the impact relating to increased collaboration among educational institutions based on the NZOSVLE project has been among faculty, eLearning managers, and instructional designers, and not senior managers and chief executives.
3. At the individual and institutional level there was some capacity development in programming and LAMP support that has resulted in contributions to the Moodle community. That said, the organizers of the NZOSVLE project have found that achieving some economies of scale through a hosting and bureau services has been able to focus resources to optimize impact in the NZ context.

Each author was asked to provide a "shameless self-promotion," and Richard's was referring to a business venture called the Flexible Learning Network. We discussed this activity in terms of how it contributes to general capacity building in eLearning, with a strong bias toward OSS, that extends beyond the education sector into government and companies.

Please feel free to refer back to the full article and comments posted at "Innovation for Education - OSS and Infrastructure for NZ's Education System." I welcome comments, feedback, and suggestions that will improve the above summary. Thank you.

[40] This content is available online at <http://cnx.org/content/m14646/1.7/>.

Chapter 5

WikiEducator: Memoirs, Myths, Misrepresentations and the Magic (Wayne Mackintosh)

5.1 Introduction - Wayne Mackintosh[1]

5.1.1 Wayne Mackintosh - Introduction

Figure 5.1

Wayne Mackintosh contributed to the series in mid-April and talked about WikiEducator, the freedom culture, and education.

[1] This content is available online at <http://cnx.org/content/m14648/1.7/>.

In addition to Wayne's work on WikiEducator[2] , he was the founding project leader of New Zealand's eLearning XHTML editor (eXe)[3] project. Wayne is a committed advocate and user of free software for education. He currently serves the Commonwealth of Learning[4] (COL) as Education Specialist, eLearning and ICT Policy and is the founding director of the Centre for Flexible and Distance Learning (CFDL) at the University of Auckland, New Zealand.

Wayne has extensive experience in the theory and practice of open and distance learning (ODL). Prior to moving to New Zealand he spent eleven years working at the University of South Africa[5] (UNISA), a distance learning institution and one of the world's mega-universities.

5.2 WikiEducator: Memoirs, Myths, Misrepresentations and the Magic[6]

NOTE: Wayne Mackintosh, WikiEducator: Memoirs, Myths, Misrepresentations and the Magic. Originally submitted April 4th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

We're living in exciting times! The free culture[7] , mass collaboration[8] , and self organisation[9] are transforming traditional models of society and the economy in fundamental ways. I don't pretend to have the answers, but I'm confident that the convergence among these forces combined with the shifts from organisational hierarchy to the individual will help us find the answers together. Finding the answers, holds huge promise for radically advancing access to education and knowledge. I use radical[10] in the original sense of the word referring to the radix or root of fundamental change as opposed to revolutionary change.

This is a post about freedom and how it can support education as a common good. If you suffer from hypertension best to read this post under parental guidance. Now that I've cleared the health warnings, I want to move onto the more important stuff.

''In education, if you give knowledge away freely - you will still have it for yourself to use."

This is why Sir John Daniel[11] of the Commonwealth of Learning (COL[12]) argues that education will not suffer the tragedy of the commons.

5.2.1 An overview

WikiEducator is working with others in the freedom culture to develop a free version of the entire education curriculum by 2015. It's an ambitious target riddled with complexity, but the importance of our work is underscored by our vision to turn the digital divide into digital dividends using free content and open networks.

I want to set the context with a short history of WikiEducator and its growth over the last year. With particular reference to free cultural works[13] , I will reflect on two academic myths associated with our industrial models of education, clear up a few misrepresentations where things I have said are sometimes used out of context, but more importantly try to capture some of the magic I have experienced being part

[2] http://www.wikieducator.org/Main_Page
[3] http://blog.worldcampus.psu.edu/www.exelearning.org
[4] http://www.col.org/colweb/site
[5] http://www.unisa.ac.za/
[6] This content is available online at <http://cnx.org/content/m14687/1.8/>.
[7] http://en.wikipedia.org/wiki/Free_Culture_movement
[8] http://en.wikipedia.org/wiki/Mass_collaboration
[9] http://en.wikipedia.org/wiki/Self_organisation
[10] http://dictionary.reference.com/browse/radical
[11] http://www.col.org/colweb/site/pid/4042
[12] http://www.col.org/
[13] http://freedomdefined.org/Definition

of the WikiEducator free content community. This is the magic that will turn the divide into dividends — magic which is produced through self organisation and mass collaboration.

5.2.2 Rationale for the post

Ken's invitation to post a contribution for the OSS series covering the impact of free software in education couldn't have come at a better time. We're preparing to celebrate the first birthday of WikiEducator[14] . This OSS series is an appropriate forum to reflect on Wikieducator's beginnings because we:

- use free software (in particular, Mediawiki[15] , the same engine used for Wikipedia's[16] online encyclopedia);
- promote and advocate the use of free software in education; and
- our meaning of free content is derived from the experiences of the free software movement.

This post will reflect on some of my personal experiences in founding the site and its potential contribution to widening access to education in meaningful ways. If anything, I hope this reflection encourages constructive debate in building the value proposition for why we need to support free content production in preservation of the educational values that should underpin our knowledge practice.

5.2.3 Memoirs: The origins of WikiEducator

A good place to start is with the original reasons for establishing WikiEducator. I set up the wiki primarily to support the collaborative authoring requirements for free content in support of COL's[17] facilitation role in guiding the development of the Virtual University for Small States of the Commonwealth (VUSSC[18]). VUSSC is a project involving 27 small states, working together as a network, including the development of free content to support the educational needs in these countries. I always hoped that the WikiEducator would grow organically from this small nexus into something bigger. Reading the statistics, this is proving to be true.

I don't see this early history to be compelling reading for our audience, so I have linked to this content. Nonetheless I have used Ken's invitation to document the early beginnings of WikiEducator. I cover this under the following headings which you may want to read when you have more time on hand:

- **History is important**: In order to dispel any new myths which may or may not arise from this post, I feel that I should document some of WikiEducator's early history[19] ...
- **The first prototype**: Getting back to the inception date of WikiEducator, in preparation for my move to COL in Vancouver, I set up a prototype installation of WikiEducator[20] on a desktop machine...
- **Reflections on choosing the domain name**[21] : I registered the WikiEducator domain name on 12 February 2006 in New Zealand, which was not put into production until April 2006 when we moved the prototype onto a hosted server... and
- **Why not Wikiversity**: I should point out that I seriously considered joining forces with Wikiversity[22] in the early days before "going it alone", so to speak...

History enthusiasts aside, it's more important to look at the outputs after our first year and the numbers provide some indication of what our community has achieved.

[14] http://www.wikieducator.org/Main_Page
[15] http://www.mediawiki.org/wiki/MediaWiki
[16] http://en.wikipedia.org/wiki/Main_Page
[17] http://www.col.org/
[18] http://www.col.org/colweb/site/pid/4256
[19] http://www.wikieducator.org/WikiEducator_Early_History#History_is_important
[20] http://www.wikieducator.org/WikiEducator_Early_History#The_first_prototype
[21] http://www.wikieducator.org/WikiEducator_Early_History#Reflections_on_choosing_the_domain_name
[22] http://www.wikieducator.org/WikiEducator_Early_History#Why_not_Wikiversity.3F

5.2.4 Early signs of exponential growth?

Popularised by Mark Twain[23] , we know that there are three kinds of lies: "Lies, dammed lies, and statistics."

On the verge of WikiEducator's first birthday, we have logged about 2.3 million hits. This week we were ranked by Alexa as the 354,568 most visited website. This puts WikiEducator within the top 8% of websites on the planet. That's not too bad for a small wiki working on the development of free content for education, especially when considering that there are approximately 48 million active websites in the world (according to Netcraft's[24] 2006 figures). The statistics for March 2006 show an average of 20,000 hits **per day** from approximately 900 unique visits. We are currently recording visits from 61% of the 193 countries in the world.

An interesting way to look at WikiEducator's growth is to compare the number of days it has taken to reach cumulative totals in steps of a half-million hits. It took WikiEducator:

- 157 days to reach its first half-million hits
- 02 days to reach the next half-million
- 41 days to reach the 1.5 million mark
- 21 days to reach the 2.0 million threshold

[23] http://en.wikipedia.org/wiki/Lies,_damned_lies,_and_statistics
[24] http://www.pandia.com/sew/383-web-size.html

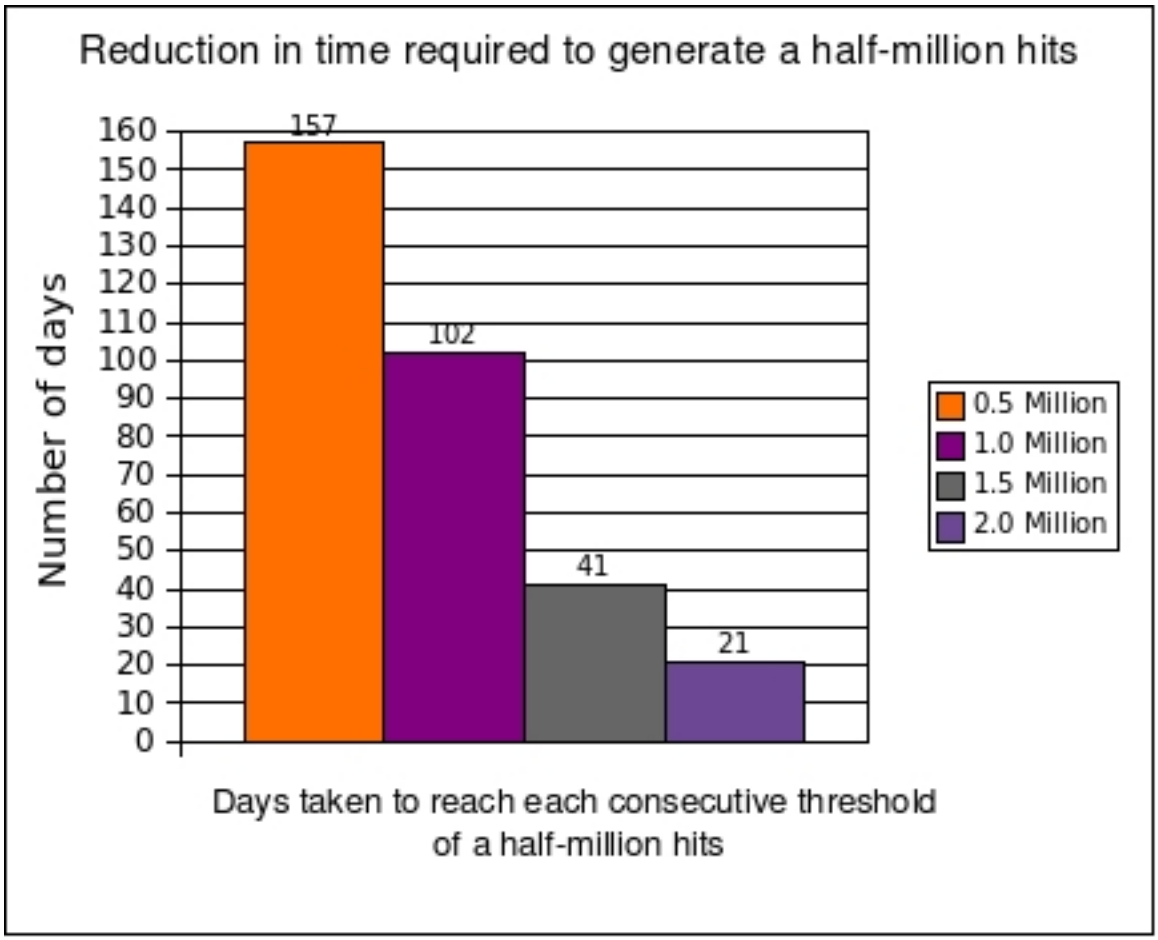

Figure 5.2

5.2.5

5.2.6 An evolving vision

The historical interactions mentioned above have encouraged WikiEducator to think critically about its evolving vision. Particularly with regards to how it differentiates itself from similar projects. Given the magnitude of our collective task to develop a free curriculum by 2015, we cannot afford duplication of effort. Where things stand at the moment — taking into account that WikiEducator is a dynamic community — I think the project differentiates itself in the following ways:

- WikiEducator has a strong commitment to the developing world in making sure that all citizens can engage as equal participants in the development of free content. This commitment is endorsed by COL's "Learning for Development" — the thrust of our current strategic plan[25] .

[25] http://www.col.org/colweb/webdav/site/myjahiasite/shared/docs/3YP-06-09_web.pdf

- WikiEducator has a commitment to build capacity in parallel with free content development, thus leveraging the advantages of a learn-by-doing approach. (See, for example WikiEducator's Newbie Tutorials[26] .)
- WikiEducator has a forward looking disposition and encourages responsible experimentation with evolving technologies in our search for sustainable solutions for e-learning futures. (See, for example WikiEducator's Tectonic Shift Think Tank[27])
- WikiEducator facilitates networking nodes of a range of projects in conjunction with our mission to develop free content for education. (See, for example FLOSS4Edu[28] and the Future of Learning in a Networked World FLNW2[29] .)

5.2.7 Myths

I use the notion of "myth" with caution. In fiction, there is no requirement to validate the truth. Similarly there is no impediment to basing a fictional work on fact. The myths I'm referring to are the traditional stories (sometimes ancient) of the academy which attempt to explain selected aspects about our educational realities. By interrogating these myths, hopefully we can establish plausible grounds for mainstreaming the free content movement in contributing to the sustainability and common good of education. Perhaps we should take the time to engineer new myths that will sustain and direct our educational futures. I encourage readers to help me in this creative story writing process.

5.2.7.1 The first myth: Universities have been around a long time - technology doesn't restructure our pedagogy

Yes, universities have been around since medieval times and are one of a handful of organisations that survived the industrial revolution. Why should this be any different in the knowledge economy? The reality is that technology has succeeded in restructuring pedagogy and there is no reason why it can't do so again. In deconstructing the myth I refer to one substantive example of technology precipitated change that has altered the pedagogy of the university in fundamental ways. I'm referring to the inception of the large-scale distance education universities. Two observations:

- Institutionalised forms of distance education did not exist prior to the onset of the industrial revolution.
- The specific roles that the learning technologies assume in the teaching-learning situation can actually alter the pedagogical structure. For example: Media resources that are used as adjuncts in support of face-to-face pedagogy, (for example slide show presentations) do not alter the pedagogical structure of classroom teaching. However, asynchronous learning resources must actually carry or mediate all the functions of teaching including the presentation of content, forms of interaction (both simulated and real dialogue) and assessment. Incidentally, this is the reason why slide show presentations don't migrate well into eLearning contexts.

5.2.7.2 The second myth: Publically funded education is economically sustainable as a common good

The massification of education as a publicly funded system has achieved considerable success in widening access, with impressive results evidenced by the exponential growth in the participation rates for higher education after the Second World War. However the long term sustainability of higher education is coming into question. The trouble with our traditional model is:

[26] http://www.wikieducator.org/Help:Contents
[27] http://www.wikieducator.org/Tectonic_shift_think_tank
[28] http://www.wikieducator.org/FLOSS4Edu
[29] http://www.wikieducator.org/FLNW2

- The greater your success in widening education, the less sustainable it becomes over the long term, especially for cash-strapped governments in the developing world;
- Education provision does not function as a perfect economy. If it did - why don't we see a radical reduction in the cost of provision - given the global demand for education. Is this a supply problem? Does this suggest a return to elitism for survival?

I contend that the economic model for higher education is fundamentally broken. The increase in student fees in the United States over the past decade has been in excess of the national inflation index. How long will the system be able to sustain itself?

We are now twenty year's away from Drucker's predictions in that famous interview in Forbes magazine back in 1997 where he predicted that "Thirty years from now, the big university campuses will be relics. Universities won't survive ..." (March 10, 1997, pp.126-127). These predictions were made just before the the hype and subsequent bursting of the dot com bubble. Drucker's predictions became the Trojan Horse for many commentators arguing for the transformation of the university to survive in the e-world. Less cited are the real reasons for Drucker's concerns, namely:

> *''Do you realize that the cost of higher education has risen as fast as the cost of health care? ...Such totally uncontrollable expenditures, without any visible improvement in either the content or the quality of education, means that the system is rapidly becoming untenable. Higher education is in deep crisis..." (Drucker, Forbes Magazine, March 10, 1997, pp.126-127)*

The deconstruction of these myths set up the value proposition for free content. It is certainly plausible that we can reduce the design and development costs of asynchronous learning materials, while improving quality by an order of magnitude through mass collaboration adhering to the principles of self organisation. Moreover, we could see new (de)institutional arrangements emerging from the free cultural works movement that supplement or compete with the traditional educational models. This is possible because of deep seated changes we are seeing in the World Wide Web. In the "old days" the web was this amazing information resource where you would go out and find what you needed. Today, information finds you. The same information we may choose to co-create as individuals through the read-write web.

There is nothing new in these ideas - they are well documented in the literature. My concern is that the traditional academy does not have a good track record in educational innovation and is one of the reasons I have taken a short leave of absence from the academy. I want to see whether it's possible to achieve sustainable innovation with free content from the "outside" - because it's important for humanity. In justification of my assertion, I should point out that the big university icons that have pioneered the Open Education Resources (OERs) movement have adopted non-free content licenses. What's the point of OERs that regulate the very freedom they are supposed to encourage? This is a contradiction in terms. It's important that we get this right - our academic freedom depends on it.

Stated differently - Assuming the freedom culture achieves a free version of the education curriculum, what are the implications for your institution?

5.2.8 Misrepresentations

I do not use non-free software because I do not want to face the ethical dilemmas arising from the tensions between honesty and educational service when helping my neighbour. As an educator, I do not want to be tempted into the illegal reproduction of software or closed learning resources when helping a learner. As a teacher, I don't want to be in a situation where I must refuse access to knowledge at the expense of helping someone to learn or for that matter earning a living. It's a personal choice. Sometimes my choices are a catalyst for emotional debate among my peers. In these situations, I frequently make statements that challenge the hegemony of closed content and the traditional pedagogy we have grown accustomed to in education. On the rare occasion, what I say is used out of context fueling misrepresentations. I'd like to set the records straight. I'll concentrate on two examples.

5.2.8.1 It's far better to have a poor quality educational resource that is free, than a high quality resource that is non-free

Yes, you've guessed it — I have been accused of disregarding quality and its importance in education.

I usually make this statement challenging those OER projects that have adopted the Non-Commercial (NC) restriction in their choice of license. First of all, quality has nothing to do with the freedom of a resource. In my experience of education, quality is a function of the design and processes implemented during the development of those resources. Quality is not a function of the commercial restrictions placed on a resource. In fact, these commercial restrictions limit essential freedoms to widen access to education, not to mention the incompatibility with the growing number of resources available under free content licenses which you can legally mix and match. Free content must be available to sell because we should not deny any individual the freedom to earn a living. This is the cornerstone of a modern economy. Besides, competition encourages quality and I would argue that we should encourage commercial activity to promote the quality of free content.

However, my major concern is the waste of human effort in many OER projects which essentially render the products almost useless for the very people they are intended to serve. I've yet to find a set of lecture notes developed by another teacher that I can use without the need for adaptation for my local context or personal style of teaching. The problem is that adaptation requires effort and consequently incurs cost. It would be nice if I could find bits and pieces of free content that I could mix and match thus reducing my personal effort in the adaptation process - in other words creating a digital mash-up from free content for my learners. The problem with the NC restriction is that you cannot mix the NC materials with any of the "copyleft" content licenses because you are creating a derivative work. Effectively the NC restriction shuts off modifications and adaptations by leveraging on the availability of existing investments in free content.

One advantage of a poor quality in a free-content resource is that you have the freedom to improve it!

5.2.8.2 Monolithic learning management systems are a barrier to widening access to education through eLearning

I've become increasingly disillusioned with Learning Management Systems (LMSs) and I suspect that they're constraining innovation in education. I am an eLearning practitioner and have previously been responsible for leading eLearning strategy in the university environment and have extensive experience with many LMSs - so I'm not an eLearning luddite with a nostalgic reluctance to adopt technology in education. On the contrary, I firmly support Sugata Mitra's[30] advice that we must use the most advanced digital technologies for the most disadvantaged learners. I'm on the side of eLearning here.

My disillusionment with LMSs fuels speculation among my peers and colleagues. I see the looks of surprise when I chat with my colleagues suggesting that LMSs are the barrier to eLearning. Their unspoken diagnosis of a temporary bout of digital amnesia is tangible. I observe the disappointment most among my free software associates that have slaved for years in the implementation of free software LMS solutions. In my view, we made an error in judgment assuming that unrestricted access to the source code of free software LMSs would facilitate innovation in eLearning. Unfortunately we have reached the point where every eLearning problem is a nail - because the only tool we have on campus is a large LMS hammer.

I think we can learn a lot from the Personalised Learning Environment [31] cohort and the work on the eFramework[32] - essentially a description of a web services architecture for eLearning. However this work is essentially a framework specification not an implementation. Given our experiences on the eLearning XHTML[33] project, which has developed an authoring tool using internationally accepted specifications for interoperability, I'm not too optimistic that we will see an e-framework implementation as mainstream technology very soon. I have yet to see an elegant deployment of the LMS/SCORM specifications in any

[30] http://www.col.org/colweb/webdav/site/myjahiasite/shared/docs/PCF4_keynote_Outdoctrination.ppt
[31] http://www.cetis.ac.uk/members/ple/
[32] http://www.e-framework.org/
[33] http://exelearning.org/

LMS (both proprietary and open source). When you view a SCORM import in all the LMSs I have tested - you feel that you are viewing alien content that is not part of the instructional strategy.

Why go through the pains of an SCORM export/import when you can simply upload and reference the relevant web content on a server using W3C protocols? (Even better, start using RSS/RDF content feeds.) The reason is that some local authority has taken responsibility to manage your freedoms to educate. We don't tolerate these intrusions in the traditional classroom, yet under elearning we accept this in the name of cost-efficiency (or some other "justifiable" reason). This is why LMSs won't survive - they are not aligned with the Web 2.0 culture of enabling individuals to teach as they see fit. LMSs are typically organisational installations and restrict educational freedom to work as individuals across institutional boundaries. In my view, this is why we will witness exponential growth in the technologies that service these educational needs. The phenomenal growth in Youtube, MySpace, Open Wiki installations, Flickr being an early example of the shift from organisation to you as individual.

You may be wondering what this has to do with free content, but it's an important debate. We have to figure out ways in which we will deliver free content to our learners. I'm not too optimistic that interoperability specifications are going provide the solution. We've got to get smarter.

5.2.9 The Magic of WikiEducator

There is real magic in the WikiEducator community and it's both addictive and contagious. However, I don't have the skills to articulate this dynamic. WikiEducator is a living organism as evidenced by a few examples:

- I have observed a free software champion based in Kenya conceptualise the FLOSS4Edu project and capitalise on the space provided by WikiEducator to mobilise educators in East and West Africa to commence development of free content for Africa by African educators.
- I have been involved with two VUSSC boot camps where 25 countries are collaborating online in the development of free content.
- I meet with Country Mike, based in New Zealand on WikiEducator's Internet Relay Channel and we share thoughts about the strategic directions for WikiEducator.
- After a recent keynote presentation in India, I was taken back by the passionate defense of WikiEducator from the floor by a senior Indian academic.
- I was moved by a reflection from a teacher based in Germany who announced in one of our forums that "After discovering the WikiEducator site I was quite exited, and I told my family at supper: Listen, I have something to celebrate, I just found something very promising!
- I interact with experienced technical gurus like Eloquence from the Wikimedia foundation in identifying sustainable innovation alternatives for open content authoring in the future.

Networked communities have their own energy and they organise themselves without the need for a centralised hierarchy. Community projects take on a life of their own, and WikiEducator's no exception. The compelling value proposition of free content and the freedom to participate actively in the destiny of WikiEducator is triggering exponential growth in the initiative.

Administrator's frequently have difficulty understanding this community impetus and attempt to over regulate this energy, leading to projects that are destined to failure in the medium term. Fortunately, WikiEducator has adopted a clean slate approach. The starting point was simply a declaration of community values - the rest followed from that. In hindsight this has been the success of the WikiEducator community. It's a delicate balance because the Commonwealth of Learning has funded the development of WikiEducator and the agency has a clearly defined strategy to support learning for development. We have refrained from interference in the evolution of the community and this is paying handsome dividends in the realisation of our aims.

In many respects the evolution of open networked communities is like golf (Although, I'm not an authority as I do not play the game). You can spend many hours perfecting your swing, but you have very little control over where the ball will rest. The old adage that your luck in getting it right will increase proportionally with the time you spend practicing, will help us move forward in the right direction.

I hope you will help us.

5.2.9.1 Comments

5.2.9.1.1 1. Ken Udas - April 5th, 2007 at 4:53 am

Wayne, WOW this is such an interesting posting that I hardly know where to start. As I read through your reflections and assertions dozens of questions rose to the surface. This being the case, I am going to start with a very general observation and question, but I also want to invite others to respond to Wayne's posting and to the comments (like this one) that are also posted.

Observation: Clearly, as I read your posting I see a strong relationship developing between Open Source Software (OSS) and Open Educational Resources (OER). I believe that as this series progresses some of those relationships and connections will be reinforced, refined, and challenged. I am actually very happy to see OSS and OER being treated together, but feel then that it is important that we understand the relationships and, as importantly, what impact they have on education.

Question: I have the sneaking suspicion that the really important touchstones between OSS and OER are not so much with the code or content, but more with the nature of the rules around distribution – that is the level of "Freedom" that is conferred to individuals and organizations that can potentially use and benefit from the assets (physical assets as well as the development of community). So, what do you think are the characteristics that allow us to talk about OSS and OER at the same time, what can the OSS and OER communities learn from each other, and how do both OS and OER impact on education?

I know that these questions are large, but perhaps the responses do not need to be.

5.2.9.1.2 2. richardwyles - April 5th, 2007 at 5:13 am

Fantastic read thank-you Wayne. I'm not going to pick up the cudgels (too much ;-) on any of it really but will offer some personal observations as we've known of our respective efforts well these past few years. I'll restrict my comments to wikis and LMSs as application technologies.

I remember many a conversation on the limitations of LMS and it's something that Ken and I used to discuss a lot in the earlier days of NZOSVLE. I've always simplified the construct of an LMS to being analogous to a classroom environment. We wanted to include spaces for informal learning analogous to social learning on a campus. Early efforts were with trying to create this space (we called it a learning portal) with a system called TikiWiki that would have single-sign-on. This was in early 2005 but it seems ages ago. In short, we failed - too few resources and really we were grappling with trying to mash together disparate systems that were like apples and oranges. Changing direction, we developed MyMoodle and the ability for a learner to set up a community space within the LMS. But this is still under the umbrella notion of an institutional LMS though which I agree tends to reflect the focus on administration and was an unsatisfactory answer. Hence Mahara which is a first stage attempt at a PLE. This thinking is also a driver behind Moodle Networks and the Web Services API we've recently developed.

I don't want to come across as defensive of the LMS but it is simply an aggregation of tools (and the best LMSs have loose coupling of the tool-sets i.e. pluggable), many of which are Web 2.0 tools and can be used in a wide variety of contexts. Agreed though that in most instances the LMS and its typical usage is a reflection of the institution, a desire for organisation and control. But I still think these technologies have a lot of life left in them. For example, Moodle 1.7 has customised roles which allows all sorts of possibilities of supporting a spectrum of permissions for people within and external to institutions. I'm about to use this to support an idea I've had for a while which is to support small grassroots non-profit community groups with access to these online community spaces. Change the language pack, alter a few tools and bingo ...In 1.8 Moodle Networks enable almost any configuration of organisational construct you can imagine and we are using SSO with web services. I would argue that we have the first stages of an eFramework implementation! And Mahara Moodle interface underway right now.

My apologies - rambling on again about my projects and I've already had my say. What I am trying to convey though is that there are many routes to similar goals. I don't think wikis are the (total) silver bullet

- the technology has some way to go, there's still barriers to entry with varieties of syntax, poor editors and they don't support many activities (yet!). But an open wiki is an admirable and important part of the mix, no doubt. I am a big fan of the direction of WikiEducator. I'm just wanting to get across that I don't want to throw the baby out with the bath-water when it comes to LMSs - they can and are evolving and I find them a hotbed of innovation. Totally agree on SCORM though, massive waste of time and energy and for what? "alien content" - spot on. Why have a LMS if it's just a SCORM player?

Go WikiEducator and radical thinking for the betterment of the world's learners.

Cheers Richard

5.2.9.1.3 3. Wayne Mackintosh - April 5th, 2007 at 12:42 pm

Hey Richard - great to touch base on Terra Incognito.

I think the success of New Zealand's open source work in Education is strongly linked to the No.8 Wire approach to Kiwi ingenuity. Their has been a strong reflective culture and the willingness to experiment taking calculated risks. Without this approach - we wouldn't be where we are today.

My concern with LMSs is that they are increasingly becoming the "Leatherman" of eLearning - You have every conceivable tool- none of which does the job properly. For example, the wiki-in-drag implementations of this collaborative innovation within a cohort-based LMS environment or the tweaking of personalised publishing tools like blogs into learning environments. Sure they add value - but at the same time constrain the potential of what these Web 2.0 tools were designed for.

If only we could add a flash drive to our super tool. Image courtesy of Wikicommons

Figure 5.3

My main problem is that I don't have a sense of excitement with LMSs. I don't see how LMSs are going to make a difference to widening access to education through free content to the kids in the developing world

who are not connected.

However, I'm very exited about wiki technology - this is one of the most significant social revolutions of our time. A wiki is not a technology. It's a self-organising community that by some magical way functions in mass-collaboration environments. I am very excited about the potential of collaborative wiki environments to make a real difference in reaching 4 billion of the world's 6 billion people - who educationally speaking are underserved. See for example my preparations[34] for the Tectonic Shift Think Tank[35] next week in Vancouver.

I take your point about the analogy of the LMS with the classroom. It is useful in communicating the concept of eLearning and LMSs to the uninitiated. Paradoxically - at the same time is the barrier to innovation in the design of asynchronous learning systems, given the structural differences in pedagogy. Resources designed for asynchronous learning migrate pretty well into the face-to-face classroom. The reverse isn't true.

Thanks for post Richard - I feel as if we're chatting in my office.

5.2.9.1.4 4. Wayne Mackintosh - April 5th, 2007 at 1:14 pm

In response to Ken

Ken wrote: >

> *Ken - I think that you're right on this one. There are obvious differences between computer code and content. For one - its far easier to author content than writing a piece of software code. Incidentally - this is why I think we will achieve a free curriculum in a shorter time when compared to the Free Software Movement, which took about 22 years.*

The link between free software and free content is very important. We have the benefit of experience from the free software movement. In my view - the link is not in the fine print of the Open Source Software definition - but rather in the philosophy which should underpin the development and use of free content development. This is a philosophy entrenched in our understanding of modern democracies - namely "freedom of speech."

As educators, I think we need to spend to ask ourselves: What are the essential freedoms we associate with free content? If we're unsure of what freedom is - How will we defend it? If we go through history we see that freedom is easily lost.

There are folk who have spent some time documenting what free content is - and I subscribe and support the Free Cultural Works Definition[36] .

If anyone is interested in exploring what the Wikieducator community mean by free content - we have a Newbie tutorial available[37] .

Cheers

5.2.9.1.5 5. richardwyles - April 5th, 2007 at 6:48 pm

Yes it does feel as though we're having a continuing chat, sometimes in person, sometimes in forums like this. Thanks Ken - a great initiative. I like the Leatherman analogy - the thing is in certain circumstances a Leatherman is a highly useful thing. What is happening now though is that with protocols like XML-RPC, SOAP and the like is that the tools in the toolkit are getting more loosely coupled. Mahara has been built to be pluggable. Drupal and Moodle are other examples of these evolving architectures and they're getting better and more flexible all the time. A terrible acronym it makes but I see LMSs like Moodle evolving to a Learning Operating System with a kernel of pluggable and highly useful tools. It's already a long way there which is why I get frustrated when folk bang on about SOA as though you have to scrap everything that exists and start afresh.

[34] http://www.wikieducator.org/Tectonic_shift_think_tank/Wayne's_wishlist
[35] http://www.wikieducator.org/Tectonic_shift_think_tank
[36] http://freedomdefined.org/
[37] http://www.wikieducator.org/Wikieducator_tutorial/What_is_free_content

I take your point about wikis in themselves being about self-organising communities. MySpace is also self-organising within the bounds of the software application it is built on. A wiki is built on wiki technologies and I still think there's a way to go here with many variants on wikitext - there's no commonly accepted standard wikitext language - grammar, structure, features, keywords and so on are dependent on the particular wiki software used and is a language that users have to adapt to. Transformations (e.g. to clean XHTML) are not yet straight forward with many wiki technologies. I'm sure this will all happen and is not far away. Wikis are indeed a very exciting part of the landscape. RSS is also an underutilised technology in educational contexts.

Cheers

5.2.9.1.6 6. Wayne Mackintosh - April 5th, 2007 at 7:43 pm

Hey Richard, Working on a Saturday - I hope that they're paying you overtime :-) .

I think you're right. The smart implementation of XML technologies is going to be the future in education. I'm borrowing a citation from Hewletts OER report on page 66, namely the "[k]ey to making the whole more than the sum of the parts is to create some XML" which you can download here. This pluggable technology is very exiting.

My concerns are social ones. Pluggable implies that you must plug the technology in somewhere. So the next questions are: - Where do I plug this in? Do I need permission to plug something in? What if I don't like the socket where I'm expected to plug the technology in?

I also think, particularly when focusing on the developing world we are going to see resurgence of client side technologies that have smart ways of linking with server-based technologies through XML. Its going to be interesting to see how this all pans out in the near future.

You're absolutely right that RSS/RDF etc is a grossly underutilised technology in education.

I'm on about the freedom of the teacher to teach -

How many IT policies in teaching organisations restrict downloads of software without some form of external control?

How many teaching organisations lock down desktops?

So it is conceivable in this pluggable environment that the freedoms of educators are restricted to the plugins they can use. "You can use any plugin as long as it fits our socket!" . This would be a tragedy for academic autonomy and the free cultural works movement.

I think that we are facing a new set of challenges - the guise that a free software installation on campus is a manifestation of the organisational commitment to freedom. For example, lets say I plan this big OER project and I embed my resources in Moodle. There is a considerable effort and cost required to reconfigure those resources for another environment. How do we facilitate mass-collaboration using the principles of self organisation in a LMS environment. LMSs were not designed for collaborative authoring. The were designed for teaching. Wiki's were designed for collaborative authoring and are the most mature technologies to achieve this aim. Sure there are challenges associated with a standard wiki text - but I don't know of any LMS that uses a standard authoring syntax. Try and take a course developed in Blackboard and port this to Moodle - you'll see what I mean. The two LMSs have their own pedagogical structure - so it doesn't matter how effective SCORM/IMS packaging is - there is a pedagogical mismatch.

Speaking from experience - I know that many educational organisations are uncomfortable with their content sitting on an open web-server. Why is that? Native (X)HTML is far more efficient than plugging all this stuff into the LMS database. W3C is a mature open standard. We can significantly reduce server load on the LMS by simply referencing free content from the LMS itself. What is the obsession to embed content within the LMS? As you've pointed out - the LMS is an aggregation of tools that facilitate interaction. I sense that there is a "political correctness" among some organisations to say that they're involved with the OER movement - yet they haven't bought into the philosophy. Take a look at the proliferation of non-free content licenses under so-called OER projects!

Don't worry too much about syntax of wiki's - we're going to get this sorted with our Tectonic Shift Think Tank next week :-) . I hope you can help us with a vision statement. We'd love to have you on board as a remote participant.

As always - good post Richard! You're making me earn my "money". Pity I can't buy you a beer.

5.2.9.1.7 7. richardwyles - April 5th, 2007 at 9:29 pm

Thanks for the invite. I'm afraid I'm totally flat tack on another wee initiative here - not a tectonic shift but a small step in an aligned direction ;-) That's why I'm working during Easter and unfortunately need to pay myself pretty much these days, not always easy ;-/

> *"For example, lets say I plan this big OER project and I embed my resources in Moodle. There is a considerable effort and cost required to reconfigure those resources for another environment."*

True and actually we are doing just that, well sort of. But we are using Moodle to simply showcase courses that have been built in a modular fashion. The "source files" are entered into an open access repository and can be pulled out and used anywhere. The degree of modularity mitigates the problem of pedagogical structures - to a degree. There is effort involved in porting across, for sure. We've been using a few analogies so I'll throw in another. I often describe our OER project as like kitset housing. We've got a showhome but really what you get is the kitset to put together the course and extend or edit as you feel fit. There's effort involved in doing that and some pros and cons with the approach.

You're absolutely right that this approach is not conducive to self-organised collaborative authoring. If doing it again we might do some things differently but overall I'm happy with the progress. The target constituency are Moodle and Blackboard users. They want, quizzes, forums, group activities, case study scenarios etc. and they also want courseware with an embedded QA process. In this model there is a quality assured 'official' release of course materials. Anyone is then free to take that release, reduce it, extend it, edit away etc but there will still be that core release. This is similar to how many open source software communities operate - there are moderator(s) to ensure quality of the code.

This is not the same type of openness as an open wiki and in some ways nor can it be given the context of quality assured credentialing frameworks etc. Within the courseware we also have flash based objects, audio and video rendered in flash. I know this won't fit with your philosophies on openness as proprietary tools may be necessary to edit the content.

In our defense:

- We're not using any NC restrictions. Commercial entities can repurpose this stuff.
- We've designed the materials as OERS, i.e high granularity, learning objects have XML engines to be more easily editable etc. This is as opposed to the trend to put up legacy courseware, call it open and then say you have an OER project when the materials are ill-suited for wider sharing and input.
- We've focused on high quality learning design so that there will be uptake amongst the tertiary education sector.
- The goal is to reduce barriers to entry and get better quality courses online for overall less investment at a system wide level. On that I'm a pragmatist and will use the best tools available proprietary or otherwise. There's shades of grey here. In my experience there's many open source projects and OER projects that aren't all that open anyway. But this isn't the final model, it's all a learning curve. A wiki environment and more extensive use of RSS are on the drawing board!

Now about that beer, coming your way in a few weeks ;-)

5.2.9.1.8 8. Wayne Mackintosh - April 5th, 2007 at 11:51 pm

Hey Richard,

This virtual environments are weird - I didn't connect this discussion with your short visit to Canada soon. No worries - I'll buy you that beer, and if its "Free beer" I'll buy you another :-) .

You guy's are doing pioneering work - that Kiwi No.8 Wire experimentation we were talking about. The rest of us are going to learn from your experiences - and I know from your work on the NZOSVLE that your experiences will be refactored back into the community - like this discussion.

The nut we still haven't cracked in the free content movement is the value proposition at the individual educator level. The "costs" of remixing in terms of time, ego (psychological ownership) etc. must be less than the real and perceived benefits. So in other words the benefits of mixing bits and pieces of free content must be more than the temptation to create my own resource from scratch. I don't think we have got this right yet (our wiki approach included).

The value of show casing is that we can visualise undiscovered potential. So go for it. I do think modularity helps overcome the pedagogical structure challenge. At the same time there is an inverse relationship between reusability and the "amount" of learning design we embed in our resources. The more learning design - the less reusable they become in other contexts. This is not a rebuttal against learning design - but a recognition that learning is always contextually bound. Its a tough challenge - but we've got to get smarter.

I like your house kitset example. It emphasizes modularity and some freedom of choice. The analogy breaks down if you want to build a boat. (Sorry - I come from Auckland, although the sailing would be better in Wellington given the wind you have down in your neck of the woods!)

I'm very interested in your experiences and suggestion that if you were to do this again, you might do things differently. What would you do differently? I know that you are hectically busy but if you could summarise this in a few bullets - we could avoid any mistakes you made - thus your contribution back to the community.

I take your point that typical LMS users want quizzes and forums. This harks back to my point about the unique differences between f-t-f and DE pedagogy. If we are smart we separate out those interactions that are typically facilitated by the LMS and other web-server technologies. However the monolithic attitude of LMSs is to control and divide. I can illustrate this with a practical example.

About halfway through the eXe project we came up with this neat idea to set up the parameters for a Discussion iDevice in eXe. The idea was that you could author the "content" for a discussion forum external to the LMS. With some neat XML, when you imported this external content into your LMS it would automatically instantiate a discussion forum, see eXe Discussion Forum iDevice[38] . At the time, interoperability specifications did not drill down to this level of functionality. We hacked our own Moodle patch to demonstrate the utility of this approach. In our excitement we communicated with the lead developer of Moodle. My response from Martin was "I don't like it" - nothing more. I responded - Martin - why don't you like it? Was it because of security concerns that we can write a patch that instantiates a forum externally from the LMS or because this was a nail in the coffin of the LMS control over eLearning. I never got a response.

Regarding the requirement for formative quizzes, close activities, case studies etc. We can achieve these without a database or requirements to be connected to an LMS. We proved this with the eXe project. Therefore - there is a lot we can do outside of the LMS in terms of free content design and development. Lets use the LMS for the interactions that require student-lecture interaction - but keep free content development outside the LMS. If we don't - we're shooting ourselves in the foot.

LMSs are organizational based installations - exponential growth in free content will come from individuals. If we embed our OER initiatives in organisational-based technologies, we will not be able to scale up free content production or reuse across institutional boundaries.

The issue is that the overwhelming majority of institutions and educators don't buy into the free content model. However, at a global level we don't need 95% of the educators to build the free curriculum - we only need 5%. Lets give the 5% the freedom to help us build free content - the rest will follow.

In this world we have two choices - to lead or to follow.

I know what side you're on.

Cheers

5.2.9.1.9 9. richardwyles - April 6th, 2007 at 6:17 am

What would I do differently? What we've done is the model I discussed further up. We've developed 10 courses for about 800 hours of learning. It's not a huge amount but it's enough to explore an OER

[38] http://exelearning.org/eXe_and_the_power_of_interoperable_discussion_forums?highlight=(forum)%7C(discussion)

model. Done again with the same limitations on resources I'd explore, say 3, significantly different models concurrently and then build on the findings combining the best of each.

e.g.

- An open wiki model
- A RSS based framework
- The modular but still LMS centered approach we've taken

The purpose of our OER project is to determine a sustainable model. In my view the business case for OERS is at the macro or pan institutional level. Individual institutional efforts tend to be a form of marketing rather than truly free open fit for purpose courseware developments and hence the problem of NC restrictions. That's the supply side though.

On the demand side "the nut we still haven't cracked in the free content movement is the value proposition at the individual educator level. The "costs" of remixing in terms of time, ego (psychological ownership) etc. must be less than the real and perceived benefits."

Part of the problem I see is that the cost of course materials is, more often than not, borne by the student in the form of text-books or course fees when digital library resources come into play. The academic writes the text, gets kudos and small returns while the publishing house receives the profit. In this scenario the educator is rewarded for being published certainly in terms of their research credentials. Open Journals are on the rise but it still doesn't crack that nut. In the music industry remixes (in essence mash-ups) are well established and musicians are credited with that skill. We need leading institutions to start publishing research and commissioning courseware in open formats and provide the recognition. So we're back at the supply side and the need for this movement to be embraced at a macro level. I've been saying as much to the Ministry of Education here lately!

This is why initiatives such as Wikieducator are so important.

Cheers

5.2.9.1.10 10. Wayne Mackintosh - April 6th, 2007 at 2:24 pm

Richard, that's insightful - thanks mate.

I'd like to combine the wiki and RSS framework models together. This way we get the benefits of collaborative authoring combined with an easy way to get the content out for remix. I will table these ideas at the Tectonic Shift Think Tank gathering next week.

Clearly we will need a holistic approach. At the micro-level remix must be painless and easy to do. That is overcoming the problem of using "someone else's lecture notes". Even with text books - institution A will choose one textbook above another. This is part of academic autonomy and must be respected. You're right - when dealing with textbooks - the students pay, so there is no institutional incentive to reduce cost here.

However, in the development of eLearning courses - this is a cost addition in most face-to-face institutions. (Even if its a hidden cost - that is academic time used to develop eLearning materials instead of doing something else like research or teaching.) So there is conceptually a motivation to share development costs but I suspect in the early phases this will be at the personal motivation level of the individual academic. How do I save time yet improve my eTeaching?. The trouble is that institutional reward and incentive systems don't recognise time spent authoring materials (in f-t-f institutions).

In single-mode distance education institutions - there is a strong value proposition. About 80% of the costs of producing DE materials is academic authoring time. So it makes economic sense to share.

There are a number of countries in the Commonwealth where authors are commissioned to develop school textbooks - unfortunately under closed copyright. I have no problems whatsoever in ministerial funding of free content development. This is a classic win-win scenario. Authors earn a living and can pay their bills. The ministry still gets the textbooks and over the medium term costs will be reduced through mass collaboration. The use of a free content license provides the freedom for local adaptations. Revisions are easier and content can be updated more frequently. There are also examples of nationally funded projects to develop online support materials for learners in identified subject areas. Again - these examples are under

all rights reserved. This coming year - I'm hoping to find one or more Education ministries that will invest in a free-text book and/or development of free content web resources as a pilot so we can evaluate and build the costing models using this approach. We must find hard evidence of the value proposition.

Just thinking aloud here - you know all this stuff.

Cheers

5.2.9.1.11 11. Ken Udas - April 9th, 2007 at 6:53 am

Sorry for dropping out of sight for a few days. There is some great dialog going on here. I would like to follow-up on one of two points in the discussion. Although minor points, I think that they are relevant. I hope that this serves to summarize some of the dialog while also iterating some of the questions.

I do think that there is some motivation for individual faculty members and institutions to create and to use OERs, under certain circumstances in place of traditional textbooks. Some examples include:

- When there are niche local needs such as language requirements, need for specific types of examples in particular content areas, traditional textbooks are banned or censored by governments and/or school administrations, etc.
- It is not economically feasible to use traditional textbooks.
- The content in the course is very dynamic and traditional publishing operations and licensing agreements are not adequate for purposes of relevance.
- Etc.

These might all be reasons to suggest that engagement by individual faculty members and institutions potentially extend beyond "marketing" efforts. In Slovakia, for example, there was a process through which we published "course notes" and made them available to students and other faculty with no explicit restrictions. The course notes were a combination of a syllabus, instructions for using the notes, assignments, assessment criteria, examinations, and content. They were in essence annotated textbooks designed to meet the localization and economic needs of a university operating in a developing economy. There were no formal mechanisms in place at the time to distribute the content beyond Comenius University, so the usefulness of the content was sub-optimized.

As Wayne and Richard point out, there are potential economic drivers outside of the situations outlined above. Wayne and Richard, you have both worked at institutions that have large course design and production functions and understand the financial commitment and economics of traditional large-scale production of courses and education materials. There are some indefinable potential benefits to OERs for these types of shops. For example:

- Lower costs associated with creating and recreating existing content including graphics, audio files, case studies, original interviews, etc.
- Lower costs associated with regularly revising course materials that are dynamic.
- Higher quality revisions and materials when they are modified, checked, and edited by multiple authors on short and dynamic development cycles.
- Etc.

Following along with the article and following comments above, that these and other potential benefits will be liberated when some barriers are reduced and a "economy" for OERs is established. Just to summarize, two of the barriers discussed above include:

- Low barrier (free) tools to design, create, publish, edit, package, publish, identify, catalog, search, etc. content, and
- Appropriate distribution licensing.

Just as an aside, following up on the use and non-use of the NC license element, here is a table that outlines the licensing agreements that have been adopted by a number of the larger US open courseware initiatives:

Open Courseware Project	Creative Commons License
Rice University, Connexions	Attribution
MIT OpenCourseWare	Attribution - NonCommercial – ShareAlike
Johns Hopkins	Attribution - NonCommercial – ShareAlike
Tufts University	Attribution - NonCommercial – ShareAlike
Carnegie Mellon	Attribution - NonCommercial – ShareAlike
Notre Dame	Attribution - NonCommercial – ShareAlike
Utah State	Attribution - NonCommercial – ShareAlike
UC Irvine	Attribution – NonCommercial - No Derivatives

Table 5.1

This prompts me to ask:

- If we could identify just a few factors that would promote an OER Economy, what might they be?
- What OSS (free) software tools are available to reduce some of the barriers?
- What OSS tools still need to be developed?

5.2.9.1.12 12. Wayne Mackintosh - April 9th, 2007 at 3:25 pm

Hi Ken,

I like your suggestions regarding the use of OERs in place of text books - particularly in the area's you've identified. Smart thinking! These are the area's we should prioritise in the free content movement from a strategic management perspective.

Regarding the tabulation of licenses used you can add OpenLearn of the British Open University that also uses the NC restriction. I can't find the link at the moment, but David Wiley announced after much research and debate on the NC restriction that the Center for Open and Sustainable Learning at Utah State University had taken a decision to remove the NC restriction from their courses - which speaking from memory was about a third of their OCW offerings.

I must stress that all the projects using the NC license are using a non-free content license that does not meet the requirements of the Free Cultural Works definition. The freedom culture are working hard behind the scenes with the Creative Commons to separate out non-free licenses from those that are free. All free content is per definition open content - however, not all OERs are free. There are two substantive reasons why not to use the NC restriction:

Ensuring the maintenance of academic freedom and autonomy: The academy has a long tradition of independence. In most countries, the university is the custodian of the critical voice of society founded on the principles of freedom of speech. We have a responsibility to protect the open pursuit of knowledge and unrestricted right to critique and reflect on the world's knowledge even if that means commercial activity! As Educators we have a responsibility to promote free access to knowledge - otherwise we risk loosing our custodianship of the worlds knowledge. Consequently - if institutions of higher education decide to participate in the freedom culture through the OER initiative, in my view they have an obligation to protect the essential freedoms.

The inclusion of the NC restriction is a contradiction in terms - it suggests a world of conditional freedom in contrast to our fundamental beliefs associated with academic freedom and freedom of speech. It's a sad world when we start saying "You have freedom of speech as long as you're not engaged in commercial activity". Universities have no problem charging student fees to access an education but many in the OER world have a problem with others engaging in commercial activity. That's double standards.

The academy has no major reservations to commercial activity associated with text-book production and distribution - yet their is an inherent fear of commercialism when it comes to OERs. If universities are concerned about commercial exploitation around OERs - they have adequate protection through the copyleft provisions of the share-alike license. (Any modifications — i.e. a derivative work must be released back into the community - so the resource will always be free). If Universities want to encourage commercial activity around free content (which I personally support) they use the CC-BY license as in the case of Connexions. In my view, the inclusion of the NC restriction is a signal that the institution does not value the essential freedoms associated with freedom of speech. Its a slippery slope where we might loose our academic freedom.

Pragmatic reasons The use of the NC restriction effectively shuts off the OERs from remixing with wealth of free content available under copyleft licenses. Moreover, the definition of "non-commericial" is unclear and it typically results in additional transactions costs for the very users we are trying to help.

The use of non-free licenses in the OER movement is the greatest barrier to radically advancing the rate of free content production. Universities risk being left behind - because the freedom culture will not comprise on the essential freedoms and they will continue with their mission. We hope that Universities will join us - it will be a great loss to society if they don't.

Ken, relating to your tools question - I believe that those technologies that facilitate mass-collaboration based on the principles of self-organisation combined with emerging XML structured content to facilitate easy remix are going to become the tools of choice. The only technology that currently meets these requirements is the Wiki. However, we still need to do a lot of work in lowering the barriers of entry to participating in the free content authoring process. For most academics - the wiki syntax is still too hard. That's why were holding the Tectonic Shift Think Tank Meeting. We are plotting the future development path to overcome these problems.

Hey - you've really got me thinking this morning. Thanks Ken.

5.2.9.1.13 13. richardwyles - April 9th, 2007 at 9:40 pm

Hi Ken and Wayne,

Thanks Ken for the table, interesting! I agree with Wayne's comments. The NC restriction severely reduces the multiplier effect which is a key benefit of OERs. I've never understood the logic anyhow and put it down to the ubiquitous politics prevalent in large educational institutions plus general fear of the unknown. As Wayne points out, derivative works must also be free so even if a company were to commercialise an OER there's extraordinary downward pressure on price because it's share-alike. Commercialisation can really benefit the user - e.g. I might be very happy to pay a company for quality type-setting, binding and a hardcover or simply for having edited it or extended it so that it is fit for purpose for my needs. But the commercial entity can hardly exploit that opportunity as I'd simply commission someone else to do the editing and binding. Here's an example, we've created an OER course on employment law. It's designed for 100 hours of learning in a tertiary education environment. 100 hours of learning is not what a company wants their employees to have, more like 2-6 hrs. I'm more than happy that a private firm distills the OER package we created so that it is fit for purpose and that they receive a fee for their time. More people have access to the learning and the multiplier effect kicks in - i.e. the economy benefits.

Reuse is one of the fundamental reasons behind OERS so any barriers to reuse must be minimised.

5.2.9.1.14 14. Wayne Mackintosh - 9th, 2007 at 11:20 pm

Hi Richard,

You have raised key issues. On the one hand commercial publishing has done a sterling job of improving the quality and peer review of published texts not to mention widening the distribution channels for academic texts where Universities are not geared up to support this value-add to the model.

Why would we want to constrain new economic models that could widen access and distribution channels of free content? After all the user can decide whether they want to purchase a hard cover bound text when the source version is freely available?

I won't go down the MDG route - but one of our prime objectives is to reduce poverty. What rights do we have as authors of OERs to deny a small entrepreneur in the developing world the right to earn a living from free content? Opponents to this argument would cite the CC developing world license in defense, which I would argue is discrimination ;-)

You're absolutely right - the multiplier effect is the sustainability model for free content!

Cheers

5.2.9.1.15 15. opencontent - April 11th, 2007 at 8:58 am

David Wiley from Utah State University here. I've enjoyed this thread immensely and have posted (what started out as a long reply) on my own blog at http://opencontent.org/blog/archives/325[39] - I hope you will find time to give it a quick read.

5.2.9.1.16 16. Ken Udas - April 11th, 2007 at 9:16 am

David, Thank you very much for linking to your thoughts on the dialog that is developing in the comments above. I think that the focus of your comment is really spot-on. Any new concept and activity will evolve and hopefully improve in concept and execution as we learn from experience and dialog critically. That said, the move forward will be more rapid, thoughtful, inclusive, and sustainable if we are embracing in our questioning and critique and appreciative of each other's contributions. This is a building process. I hope that our dialog is developing in that spirit. There is no question that we are all building on the efforts of the institutions that took early steps. Because of the diversity of licenses that are being used in a number of successful OCW projects, we have the opportunity to test our notions about the impact of the NC license feature.

Ken

5.2.9.1.17 17. PhilippSchmidt - April 11th, 2007 at 10:14 am

Thanks for a fascinating discussion, and sorry for jumping in so very late ...

Richard, I really liked your short summary of why NC does not make sense. I have been arguing this point for a long time, but don't think I have been able to explain it as well as you do. Thanks!

A few points that were brought up seem related to the perspective we are considering, either that of the teacher/lecturer or that of the students. I find that once we start looking towards students as the sources for content and innovation in education, some things we are still struggling with might start to fall into place more naturally.

- Wayne said something about still having to crack the nut of getting teachers to remix lectures

I propose changing the nutcracker, and getting students to remix the lecture content instead (or in addition rather). They are doing this already on flickr and myspace and facebook - as was pointed out - and the social feedback mechanisms seem to be more powerful incentives for students than for lecturers.

- The users of our software want quizzes, tests, etc.

This is true, only if you ask the lecturers. I would argue that we have not seen a great deal of innovation in teaching and learning, because we have relied on the lecturers to innovate - and they lacked the right incentives. If we want innovation, I think we need to turn to the students. A comparison of free software development models also makes a lot more sense if you include students as "developers" of open education.

A friend and I just started blogging about applying some of the incentive mechanisms from software to other fields. Have a look for the grumpy old guys from the muppet show over at icommons.org[40] if you are interested, and join the conversation.

/Philipp (Freecourseware Project, University of the Western Cape)

[39] http://opencontent.org/blog/archives/325
[40] http://icommons.org/

5.2.9.1.18 18. richardwyles - 11th, 2007 at 11:20 pm

Hi David, I've read your post and sure thing, I think all of us in this space are very much aware of the personal effort that goes into this. But I don't think anyone is detracting from that. I'll rebut the notion that anyone is being insulting of those efforts. Challenging perhaps, but it's not an emotive response. In fact I think "ubiquitous politics prevalent in large educational institutions plus general fear of the unknown" is the way I described just what you're talking about. We're all working in contexts where we're trying to move towards openness but have various constraints to overcome. I really like your header "iterating towards openness" as that sums it up nicely.

So I think that characterising this as negativity is incorrect. We are having a dialogue on an important issue. Constructive debate is a away for each of us to find some answers and I've always found robust discussion as one of the faster ways for me to learn. And even if I agree with Ken or Wayne then it's often more fun to engage in debate. Wayne's been on my case for years that I use Windows on a daily basis - arrgh, it's out in the open now ;-) - but due to our IT department I have to add...

5.2.9.1.19 19. richardwyles - April 11th, 2007 at 11:30 pm

Hi Philipp, I remember those guys from the Muppets - they would end up arguing away until each had completely swapped their positions - best skit on the show. The students as creators is definitely a rich avenue for OERs and you can imagine how rapidly the quality would improve if each course is an iterative improvement on the last and creating the course materials is part of the assessment.

5.2.9.1.20 20. Wayne Mackintosh - 12th, 2007 at 12:34 am

Philip wrote: >

> *This is why I like the wiki model so much :-) . The openness of the authoring model means that we can conflate the functions of teaching and learners. Learners can become teachers by authoring new content. Teachers can become learners by observing what changes learners are making to the content resources they authored.*

So I'm in total agreement with your recommendations!

5.2.9.1.21 21. Wayne Mackintosh - April 12th, 2007 at 1:01 am

In response to David's post

David, you make a compelling and valid point:

> *"When an institution enters a new world (like the world of open educational resources) we can and should expect the early adopters to move in baby steps, dipping their toes in before diving in head first."*

I think this is true of life, and this argument can provide a justification for the proliferation of the NC restriction in many OER projects.

I'd like to respond as an academic. I hold a terminal degree and have spent the majority of my career in the University. I've had the privilege of holding senior management positions in the university sector. I also know that you are a pioneer of the "open content" movement - pushing the envelope around free content long before the concept of "Open Education Resources" was coined by that UNESCO meeting. (I was reading your stuff long before you attained guru status :-)) My point being - Why is it that we as academics "get" the problems of the NC restriction when other academics don't?

Let's face it - the university is an institution that is endowed with some of the smartest people on the planet. What are the reasons why these smart people don't get the value proposition of free content when our culture of research is built on sharing knowledge? Both of us as researchers stand on the shoulders the

giants that have gone before us. We have no problems sharing knowledge when it comes to research (and attributing our sources) - but we have this aversion to sharing teaching resources. It doesn't add up.

I'm very interested in exploring the reasons why the removal of the NC restriction is such a big step. It doesn't add up with our core values of academic freedom.

mmmmm - another research project?

5.2.9.1.22 22. Ken Udas - April 12th, 2007 at 8:31 am

Response to Philipp:

I think that you are spot-on. I have been teaching/facilitating online since the mid-90s and have designed each of the classes to be heavily conversational and project-based. With this type of course design, 99% of all content and is generated by the learners during the class experience and all of the learning activities are based on learner contributions. Ignoring what learners create would be an enormous missed opportunity.

So, does this speak to some learning design and class facilitation principles, techniques, and patterns that promote the generation of usable and reusable content and learning activities?

5.2.9.1.23 23. Ken Udas - April 12th, 2007 at 10:38 am

Response to David/opencontent:

Like Richard, I think that there is benefit in hearty and respectful exchange of opinions, but I am really turning to the likes of Rice, USU, MIT, etc. for guidance as early adopters, innovators, and thoughtful practitioners. Although we are just starting to dabble in OER/OCW at Penn State, I believe that there is an enormous watershed of interest in OERs. In fact, I know that there is. My concern is that we turn uncritically to the larger community and just do what the early adopters did. After all, if it is good enough for MIT, USU, CMU, and Tufts surly it is good enough for us. I am in the process of generating a dialog around the importance of:

- Adopting a standard CC license instead of creating one that is unique to Penn State.
- Adopting a license that is as open as possible and does not restrict commercial use.
- Considering how we design materials in such a way that they are most useful to the broadest audience possible (level of granularity, ease of localization, bandwidth challenges, etc.)
- Thinking about open educational resources that are not courseware.

In any event, it is critical for me, and I think other later adopters, to be able to get insights into what is working well and what is not working so well. How we can improve on what is being done, how to avoid some of the pit falls, and how to take advantage of lessons learned. In doing so we are turning to the early adopters in the hopes that they will be reflective and transparent. As Wayne mentions above, it is part of the tradition of standing on the shoulders of giants.

5.2.9.1.24 24. Wayne Mackintosh - April 14th, 2007 at 1:08 am

Ken, I must compliment Penn State's reflective approach based on solid academic tradition, before taking a substantive decision like licensing of OERs. Your institution has the benefit of hindsight which the early pioneers did not have at their disposal.

While I'm not an expert on the US Higher Education system - I think that the dialog around this issues you have listed are well aligned with the original mission of the Land Grant universities. The critical question is closely linked to what it means to be a Land Grant university in the knowledge society - particularly with the rapid growth in free content made possible by Web 2.0 technologies.

It's by no means an easy decision - but who said leadership would be easy?

Have enjoyed the interactions generated by these replies which confirms that we're busy with important work!

Cheers

5.2.9.1.25 25. Ken Udas - 14th, 2007 at 12:27 pm

This was a great exchange. Thank you Wayne and to thanks to everybody who contributed and who have been following along. Stay tuned for the summary, which will be posted soon.

5.3 Summary[41]

5.3.1 Summary of WikiEducator: Memoirs, myths, misrepresentations and the magic

"WikiEducator: Memoirs, myths, misrepresentations and the magic," the third installment of the Impact of Open Source Software Series, was posted on April 4, 2007, by Wayne Mackintosh, education specialist for eLearning and ICT Policy at the Commonwealth of Learning[42] (COL) and founding director of the Centre for Flexible and Distance Learning (CFDL) at the University of Auckland, New Zealand.

Wayne provided the focus of his article early on with the statement, "This is a post about freedom and how it can support education as a common good." Wayne then framed his article around the intended role of WikiEducator in leading and supporting the development of an entirely free education curriculum by 2015. It is worth noting that Wayne's work with WikiEducator clearly connects both Free and Open Source Software with Free Open Educational Content (OER). WikiEducator[43] is built on the OSS Wiki application WikiMedia[44] .

Wayne's article has a reflective quality that includes sections on:

- The history of WikiEducator, focusing on the origins of the project and some of the early decisions that included selecting a domain name and potential collaborations.
- Growth in site use.
- How WikiEducator is evolving to meet the 2015 free curriculum objectives. Wayne indicates that WikiEducator is evolving to support engagement and experimentation, facilitating networking and supporting projects that are aligned with COL's commitment of learning for development.
- Myths about the university and public education. The treatment of these myths shed light on some of the connections between technology and education, and by extension, the impact of OSS and Open Content on the sustainability of educational systems. Wayne provides a provocative and intriguing argument for rethinking the current structure of higher education economics. These myths included:
  - "Universities have been around a long time - technology doesn't restructure our pedagogy"
  - Publicly funded education is economically sustainable as a common good."

- Misrepresentations of Wayne's comments and arguments. This is another interesting and provocative section, which probably generated the lion's share of comments. The first misrepresentation addressed is, "it's far better to have a poor-quality educational resource that is free, than a high-quality resource that is non-free," which Wayne retraces to arguments about licensing content to make it most useable (avoiding the use of the noncommercial restriction). The second misrepresentation, "monolithic learning management systems are a barrier to widening access to education through eLearning," is linked to Wayne's assertion that learning management systems have dominated and constrained how we think about structuring and supporting eLearning, effectively stifling dialog about personalized learning environments and other alternative approaches to learning and communication support environments.
- The section titled "The Magic of WikiEducator" is Wayne's opportunity to frame that section's dialog by reflecting on the impact he has seen WikiEducator have on practitioners and projects that are aligned in a loosely coupled network with the basic Commonwealth of Learning commitment to educational development and the tangible objectives of a free curriculum by 2015.

[41] This content is available online at <http://cnx.org/content/m14688/1.3/>.
[42] http://www.col.org/
[43] http://www.wikieducator.org/
[44] http://wikimedia.org/

There were a number of comments and responses made during the days following Wayne's post. There were at least five central themes that were generated from the comments.

1. Although there are numerous connections between Open Source Software and Open Educational Resources, one of the principal connections explored is the nature of "Free" software and content. Wayne pointed out that although there are some similarities between code and content, content is a much more accessible artifact to create. That is, more individuals have the skills and knowledge to generate educational materials than production-level code for software, and that is why a full free curriculum by 2015 is realistic.
2. The limitations and opportunities that LMS (Learning Management Systems) present to us, and the future of such systems were discussed through the commenting session. The conversation ranged from tool interoperability, access, and limitations that LMS place on open networking. Wayne suggested that the Wikis reduce use barriers and support social networking, which is a function for which the LMS is ill suited. Wayne also indicated that the LMS classroom metaphor restricts the new pedagogy of networked distributed learning. There were other arguments suggesting that LMS can work toward more open and extensible environments, so there is no need at this point to count out the LMS.
3. Appropriate platforms used to support Open Educational Resource projects were discussed in terms of reducing barriers to access and inviting group and networked creation and continued development of content.
4. Using an appropriate distribution license was another major area of discussion. The most notable feature of this thread was the use or non-use of the NonCommercial Use Restriction[45] . A number of comments were used to develop a rationale for not using the NC license restriction. In addition, an argument was developed in some comments about how the NC license element sub-optimizes the impact of the content and creates confusion in the Free Content "marketplace." David Wiley from Utah State University responded to this thread of discussion with a posting titled "Why Universities Choose NC, and What You Can Do[46] ," which provided an opportunity to reflect on the efforts of pioneering institutions and what others new to OER projects can learn from the earlier adopters.
5. Another thread addressed some of the challenges with content development at the individual level. There was some discussion about the appropriate level for OER programme focus; areas identified included individual, institutional, and pan-institutional. It was also argued that because the cost of traditional text books are absorbed by the learner, there is less incentive for faculty members to produce OERs than if they absorbed the costs personally or of it came out of their departmental budgets. One poster pointed to the viability of contributions made directly by learners, which prompted a comment suggesting that there are learning design techniques that promote the creation of educational artifacts as part of the learning experience.

Please feel free to refer back to the full article and comments posted at "WikiEducator: Memoirs, myths, misrepresentations and the magic." I welcome all comments, feedback, and suggestions that will improve the above summary. Thank you.

For more information about the Impact of Open Source Software on Education series, visit the project site[47] on WikiEducator. I will be exploring ways in which we can best make the series assets into OER[48] .

[45] http://creativecommons.org/about/licenses
[46] http://opencontent.org/blog/archives/325
[47] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita
[48] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita#Managing_the_Series_Assets_as_OE

Chapter 6

Barriers to the Adoption of Open Source: Personal and Professional Observations (Pat Masson)

6.1 Introduction - Pat Masson[1]

6.1.1 Pat Masson - Introduction

Figure 6.1

Pat Masson currently serves as the Chief Information Officer for New York College of Technology at Delhi. As CIO, Pat provides oversight, leadership and vision for the college's Campus Information Services including enterprise applications, technical centers and labs, server/systems administration, network & telecommunications, online/distance learning as well as user support such as help desk services.

Previous to his appointment at Delhi, Pat worked for The State University of New York System Administration as the Director of Technology for Learning Environments, and was responsible for leading technology

[1] This content is available online at <http://cnx.org/content/m14708/1.3/>.

design, development and deployment of system-wide projects including SUNY's e-learning platform, SLN, serving over 110,000+ enrollments, 5000+ courses and over 3,500+ faculty annually. Prior to joining SUNY, Pat was Director of the UCLA Media Lab.

6.2 Barriers to the Adoption of Open Source: Personal and Professional Observations[2]

NOTE: Author - Pat Masson, "Barriers to the Adoption of Open Source: Personal and Professional Observations". Originally submitted April 17th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

6.2.1 Open Source Software is not a Technology Issue.

I do not know where the debate now resides regarding the adoption of Open Source Software (OSS), that is, if it is now a business or cultural issue. But I am sure that while it may have once been a debate within IT, it is not now. Much of the technical debate about functionality, quality, support, etc. now seems tired and even trivial. Are we still questioning the feasibility of community development and the viability of OSS? I guess so, I'm writing this, and you are reading it...

Based on Open Source's adoption among commercial software providers, OSS would appear to be an accepted and proven approach. According to a 2005 report by Optaros, The Growth of Open Source Software in Organizations[3] , "Some 87% of the 512 companies we surveyed are using open source software. Bigger companies are more likely to be open source users: all of the 156 companies with at least $50million in annual revenue were using open source."

[2]This content is available online at <http://cnx.org/content/m14709/1.7/>.
[3]http://www.optaros.com/

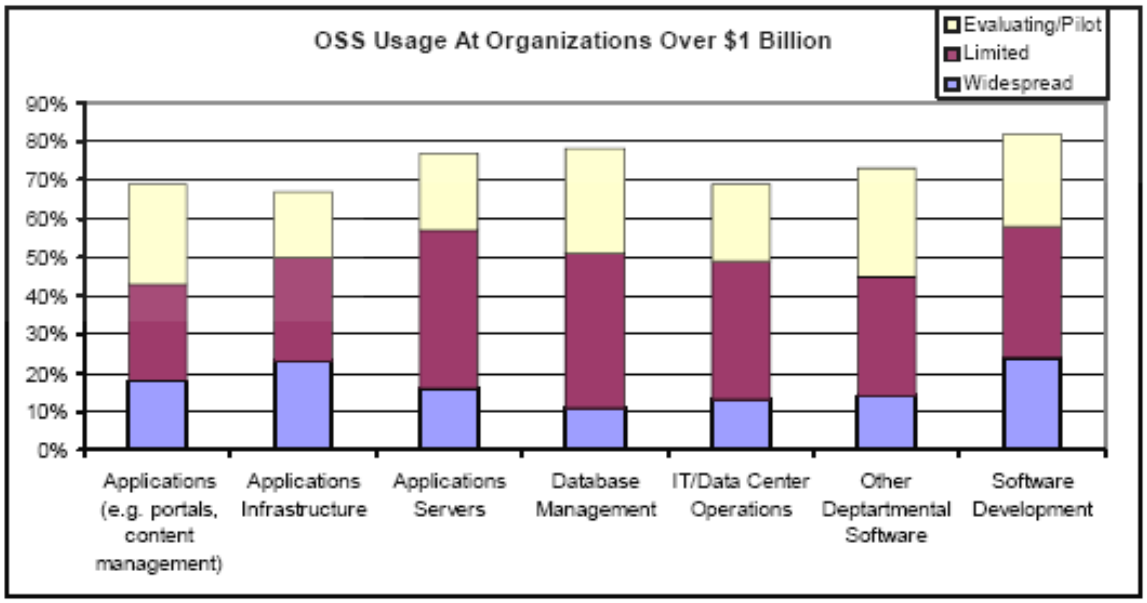
OSS Usage At Organizations Over $1 Billion
Evaluating/Pilot
Limited
Widespread
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Applications (e.g. portals, content management)
Applications Infrastructure
Applications Servers
Database Management
IT/Data Center Operations
Other Deptartmental Software
Software Development

Figure 6.2

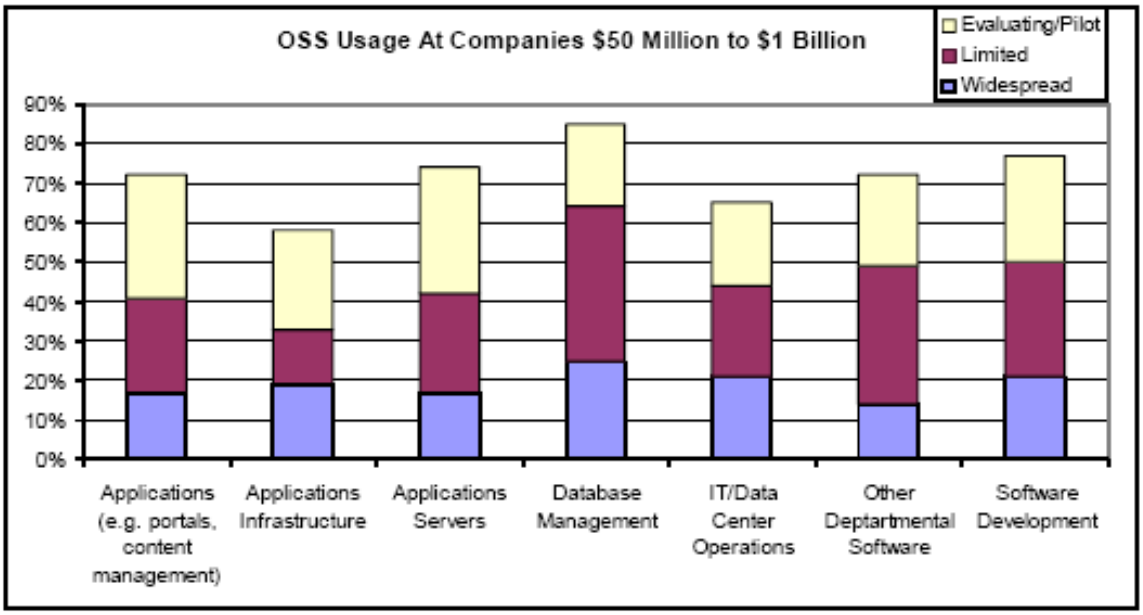

Figure 6.3

Many of academic computing's most prominent vendors not only rely on open source projects, but contribute to them as well, including: IBM (Eclipse, Sakai, SUSE Linux), Oracle (Berkeley's DB, Eclipse, Fusion Middleware, jDeveloper, Unbreakable Linux, PHP, Sakai) Novell (Apache, Eclipse, Jboss, Linux Kernel, Mozilla, MySQL, openLDAP, OpenOffice, openSUSE, Perl, PHP, PostgreSQL, Samba, Tomcat, Xen) SUN Microsystems (GNU/Linux, Java, OpenOffice, OpenSolaris, Sakai, uPortal), Sungard Higher Education (Sakai, uPortal) and Unicon (Sakai, uPortal, Zimbra). There are some very telling examples of companies who have integrated Open Source into their businesses; those who simply support open source tools (too many to name), those who have released a previously proprietary code base into the public domain (e.g. SUN Microsystems' Java programming language), and most telling of the acceptance of open source and community development within technology markets, those who have actually integrated open source tools into their commercial product lines (e.g. SunGard's use of uPortal within Luminis III)–hardly the move to make if you consider open source products to be poor in quality or unreliable in development.

And yet there is another area, often overlooked, where OSS has proved valuable to commercial developers. In addition to the actual software, the movement has also helped redefine the software development life cycle, that is, how applications are designed, developed and deployed. "Community Development" has become a standard practice capitalizing on Linus' Law described by Eric Raymond in The Cathedral and The Bazaar[4] as, "given enough eyeballs, all bugs are shallow." Many of the techniques associated with "extreme programming" and "agile development," that are common today in software development, co-evolved with open source and free software projects as they adopted Bazaar-style open development models: pair-programming, user-developers, short development cycles, iteration, etc. Many of today's commercial providers producing proprietary software have adopted "open" development methods. David Treadwell, corporate vice president of the .Net Developer Platform group at Microsoft, said in a November 2005 interview with eWeek[5] that Microsoft encourages agile methodologies such as Scrum and extreme programming, "the

[4] http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/
[5] http://www.eweek.com/article2/0,1895,1885883,00.asp

concept where you might have two people working on a given piece of code and the idea is that two minds are better than one. Because you can find problems faster." In another example, Common Services Architecture[6] "represents a new paradigm for collaborative software development within SunGard. It's a collaborative development process—a way of creating software that allows SunGard product development teams around the world to share, contribute to, and leverage, each other's work."

So there seems to be a clear indication from those outside academic computing—in fact those that we within academic computing are paying for services—that the technical debate regarding open source is over. However, the decision-makers in academics, do not seem as willing to accept the same, and appear to be taking up the debate all over again, albeit with different arguments.

6.2.2 You're Soaking in I.T.

Figure 6.4

Remember Madge, the manicurist who used Palmolive as a moisturizer? I think many within academic environments are shocked when they find out how dependent their operations are on open source tools, just as Madge's clients where when they found out that they where soaking in dish soap. The analogy works because an expert found a tool that works, and the client shouldn't care as long as the requirements are met and the outcomes are acceptable, but I've seen the same reaction from administrators as that displayed by Madge's clients, shock, fear and pullback.

It's obvious that technology is playing a greater and greater role throughout the campus. Many traditional business practices are being supported or even replaced by "technology." There are the obvious examples; how many memos make up inner-office communications versus email, how much teaching and learning is now delivered with learning management systems, how many students enroll and register with student information services on-line, etc. These, as I said, are the obvious ones. However on my desk right now I have software proposals for less obvious systems; a housing management system that allows students to select rooms, roommates, meal plans, etc. submitted by Residence Life, an alumni analytics package that provides the Alumni Office with prospective contributors, veterinary management software for our Vet. Tech. program to help manage the care of the department's animals, a fuel management system requested by campus Facilities for dispensing and monitoring fuel, a SoIP, or security over IP, application for the University Police, and many

[6] http://www.sungard.com/csa/

others. To support these systems, I may deploy them on various open source tools within my department, Campus Information Systems. Do the deans, directors and decision-makers know this? Would the fact that we may use the Linux version vs. the Windows version affect their decision making in identifying the right "solution" for their business case? Let's really add some complexity, what if we installed the Windows version on a virtual server? Who makes these decisions regarding the use of open source?

I think one of the often overlooked parts of open source adoption, even ridiculed, by those in technology who have accepted OSS, is governance: not pertaining to an open source project, but rather the campus' or institution's management of "enterprise" systems and services. As institutions begin to explore open source projects and the communities which support them, they are likely to experience push-back from those new, unfamiliar, concerned, reluctant or even opposed to—not the products' functionality, features or usability—but open source software itself. While concern may have come from technologists in the past, today, in my experience, resistance comes from the departments IT supports. Many working within IT are quick to write off those who "don't get it" and simply continue working with OSS without the official blessing of their institution, confident that their activities will inevitably become operational as more and more users come on line (sort of a bottom-up, or under-the-radar approach) with departments eventually adopting the ubiquitous system(s).

This approach to IT governance is based on how open source tools have traditionally been deployed within the campus' computing environment, and could be called the "stack approach." This is based on the growth open source software has seen within the campus data center, "low in the software stack," focused on operating systems, server software, development tools, databases, etc. As campuses become more familiar and comfortable with (dependent on?) OSS in these utilities, presumably, the door will open for systems such as email, content/learning management, business and finance, even fuel management systems: those services deemed mission critical by campus decision makers as "enterprise applications."

And in fact, OSS has enjoyed significant adoption on campuses within the data center, the paradox is, few know it... especially those within the campus' administration. As an academic CIO, I cannot recall many conversations I have had with my peers (other CIO's, CTO's, Directors of IT) or colleagues (Provosts, Deans, Administrative Directors) regarding utilities running low on the software stack such as server operating systems (Linux, Unix, Windows) web servers (Apache, IIS, iPlanet, SunOne, Zues, etc.), application servers (BEA, OAS, Tomcat, etc.), mail servers (Exchange, Postfix, SendMail, SquirrelMail, etc.), programming languages (Java, .NET, Perl, PHP, etc.) or, Integrated Development Environments (Eclipse, JDeveloper, WebShere, etc.). These are considered operational by my peers and insignificant by my colleagues. Interestingly, I have had countless debates regarding; desktop operating systems (Linux flavors, Macs and Windows), email clients (Domino Mail, Eudora, Outlook, etc.), Learning Management Systems (Angel, Blackboard, Moodle, Sakai, WebCT, etc.), Student Information Systems (Banner, Datatel, Kuali, PeopleSoft, etc.) and other "ERP" systems with, not my peers, but with my colleagues. CIO's see these applications—and the decision to use them—within the realm of the campus departments, and so do the Provosts, Deans, Directors of HR, Finance, Enrollment, Alumni, etc. The now tired arguments that may have prompted technology folks to investigate open source—code quality, security, integration, customization, support, etc.—simply may not be applicable, important or even understood by those in other campus business units assessing their software needs against specific business operations, because these tools (and the values of OSS) operate behind the scenery. I would imagine that those reading this, care more about the content and discussion that may result within the forum, than the fact that it is presented with WordPress hosted on AIX and delivered via Apache.

In 2006 I presented findings on the deployment, and the opinions of administrators, of OSS within The State University of New York's 64 campuses. The statistics, provided by Netcraft[7] , identified which operating systems and server software where deployed on the SUNY campuses' publicly accessible servers including email, ftp, media, web and others: all of which could be considered "low on the software stack." The results indicated that while SUNY deployments of OSS was generally lower than global deployments (again provided by Netcraft), it was growing within the campuses' data centers. For example, specifically to web server software, global deployment of Apache peaked at 70% with SUNY at 63% in 2005. SUNY also

[7] http://news.netcraft.com/

saw steady growth in Linux distributions running on various server types, rising from 7% in 2000 to 27% in 2006. However, these "adoption rates" measured applications transparent to end-users: web-server software and the operating systems they ride on. How many of the folks governing online education and debating Moodle are also debating the LAMP stack?

The insignificance of OSS adoption within the data center as an influence on more visible applications became evident to me when, as part of my research, I surveyed campus administrators. Respondents came from a variety of fields, including technology providers (CIO's, IT staff, etc.) and end-users (faculty, non-IT administrators, etc.), and a clear division was evident. Open source software appeared to be a credible option within the data center for technical services but apparently not for systems that end-users touched. One respondent attested, "[my campus] seldom if ever adopts open source software." However the figures provided by Netcraft indicated that all of that campus' servers ran Linux and 23 of the 27 servers ran Apache. In fact, they where "soaking in it."

This raises an interesting issue: how aware are campus administrators, who may be working with commercial providers such as SunGard's Banner student information system and their portal Luminis, that they are actually relying on OSS? Is the confidence derived from a commercial provider (SunGard) diminished by the fact that Luminis is built upon an open source project, uPortal? Or availability for the entire suite of student services may be dependent on OSS within the campus data center? If so, shouldn't Student Affairs, Enrollment, Finance, The Alumni Foundation, etc. be part of the governance (decision-making) for their complete "solution" from the SIS all the way down the software stack, and not just those applications they work directly with? Unless they are, the "stack approach" plays no part in the adoption of open source on campuses.

6.2.3 Any sufficiently advanced technology is indistinguishable from magic.

6.2.4

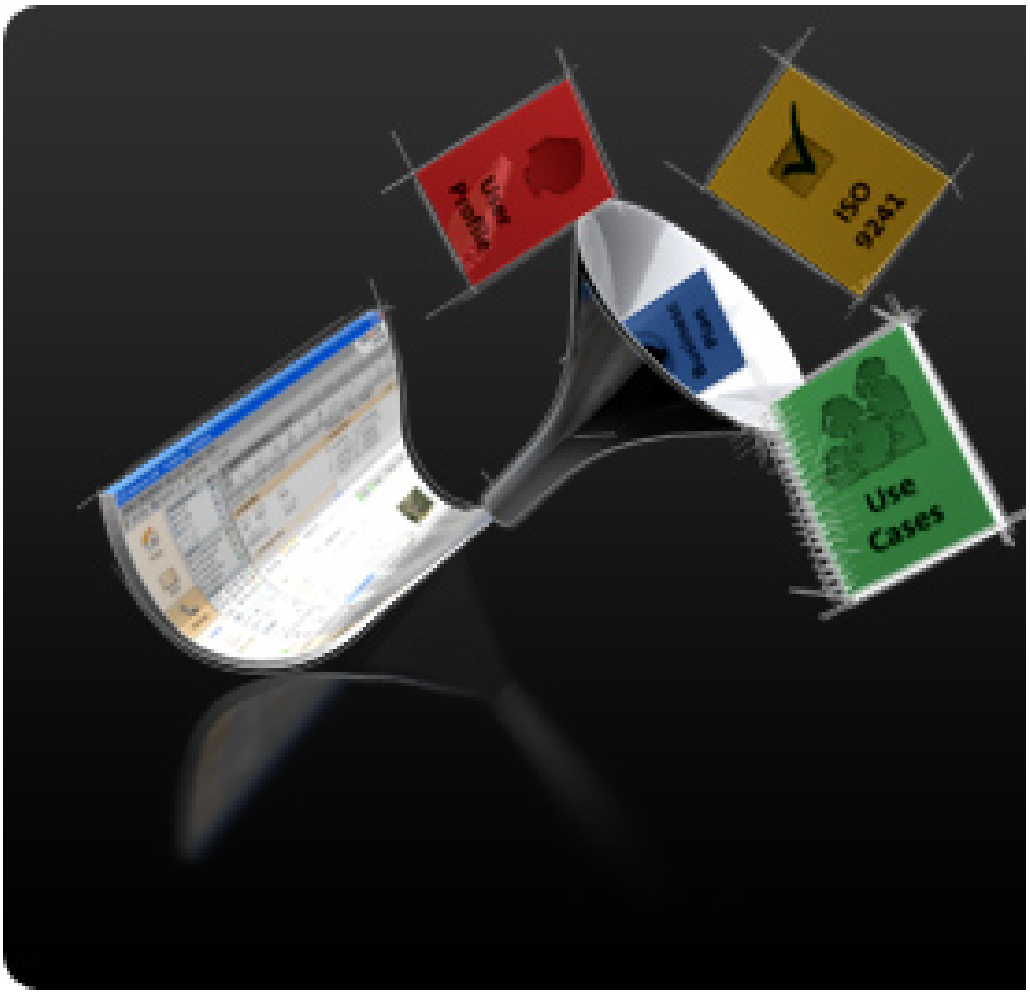

Figure 6.5

There is a rather cynical term, derived from Arthur C. Clarke's above statement, and used by software developers to describe the unappreciated effort and technologies it takes to support user requirements: "automagic." As those in software development can attest, end-users just want it to work and generally do not care about how that's accomplished. Interestingly, one could argue, that the success of open source, as a development method, is due to just this sentiment: If the users don't care about, or even understand, the technologies that deliver functionality, then let's use those that provide us the easiest environment for deployment, open source.

Working in this "just make it work" environment, where more and more folks want more and more things to work, it's understandable that the tenets of Free and Open Source Software would become standard operating practices within IT departments. For example, the ability to run software for any purpose allows the scope of services to expand, unhindered by licensing. This is a great resource as you deploy more instances

of Linux through out the data center to support that growing set of departmental systems (Remember the fuel, housing and veterinary management systems?). Additionally, the ability to study how the software works and adapt it to an institution's needs, provides for rapid development and quality assurance. These technical benefits have been the basis for those advocating the use of OSS. However, in my opinion, as long as open source is addressed as a technology issue it will never move into the status of commercial software. Consider a common topic on campuses today, Learning Management Systems. Should faculty be debating .NET, PHP and Java, or, SQL Server, MySQL and Oracle, or, Windows, Linux and Solaris, or, the waterfall method, Spiral techniques and eXtreme Programming, or, Angel, Moodle and Blackboard? That's the goal, a debate over an application's features, not a technology debate.

Figure 6.6

At a recent technology conference I was working away on my computer at lunch when the fellow next to me asked about my laptop, or more specifically my operating system's desktop. Apparently he had noticed me rolling the 3D desktop, or "cube." I explained that I was running SUSE Linux and that the 3D effects (Xgl) where all part of the operating system. In fact, this was not the first time someone had noticed and asked about the GUI and I expected this to be the beginning of a nice lunch time discussion (and a welcome distraction from my email). However the conversation faltered as Linux was quickly dismissed as "too complicated for average users," something only "geeks" could use and support (yes, I guess he called me

a geek). I continued on with the demo highlighting more of the graphics tools, searching tools, OpenOffice, the GNU tools like Gimp, etc. I showed him YaST and the Software Updater that installs patches, updates, etc. We talked about distributed networking and managing remote desktops. All of these were features, not technology. He was definitely impressed, SUSE was cool, SUSE was powerful, SUSE offered a lot of functionality and tools, but SUSE was Linux, and Linux was open source. So while it was OK for geeks, it was not very practical for business' every day users, citing the usual technology related concerns about OSS; support ("you can't call the guy in the basement who wrote it when it breaks"), quality ("how good can it be if it's free and built by a guy in a basement?"), security ("if anyone can get into the code, then we could get 'hacked'!"), etc.

I tried to respond by mentioning that not only can support be obtained by Novell, but even Microsoft supports SUSE Linux[8] . I let him know that SUSE would run on his existing Microsoft network. I opened an Microsoft Excel document in OpenOffice Calc. However we quickly devolved into that same old tired debate. Although SUSE Linux provided all of his functional needs and met his usability requirements, we never got past the technical and into the operational.

Based on this I decided to try a little, utterly unscientific, experiment. A little later, when another person asked about my machine—admittedly I was flashing everyone who walked by with spinning desktops, wavy and transparent windows and tiled applications—I informed my subject that he was looking at a pre-release of Windows Vista. Our conversation immediately focused on "Vista's" new features (the same ones I had shown the previous fellow), but this time it was all about usability and functionality. We never discussed how valuable his support from Microsoft was (I wonder how many tickets his institution has opened?), we never discussed how good the actual operating systems was (did it crash, was it buggy?), we never discussed security (perhaps his campus has never been the victim of a virus?) and we never discussed upgrade costs (I assume it was something he just was resigned to absorb). What were apparently barriers to open source adoption, were accepted as the cost of doing business for proprietary software. The lesson here for me was, "why even bring open source up?"

I suspect he knew what personal computing was on his campus, and while he did not know any of the technical issues involved with deploying and administering Vista, he knew the IT staff on his campus would have to make it happen, automagicaly!

If this person happened to be a decision maker on campus, SUSE as a desktop operating system would be dismissed because of open source issues (apples), not issues related to the actual functionality and usability (oranges). I would ask, does your Student Services or the Alumni Office really care if their business systems are running on AIX, Linux, OpenSolaris, Unix or Windows? I would wager no, they really only care that they can enroll students, assess fees and contact students and alumni. So, why then, would the office staff care if they where running SLED, OSX or Vista if all they really want to do is manage spreadsheets, write emails, store files, print and browse the web? They only would if OSS proponents bring it up. Enterprise level OSS is mature enough that it should be assessed just as commercial software is, based on business needs, functionality, features and usability.

So let's embrace the automagic! Let's let our colleagues live in peace, they don't care about the technology issues low in the software stack (OS, servers, databases), they just want their applications up and running. So they shouldn't care about the technology issues with the applications they can touch (LMS's, SIS's, desktop OS's), they just want their applications up and running. To turn things around, I don't really care if my campus uses Angel, Blackboard, Desire2Learn, Moodle, Sakai or nothing! That's the on-line learning folks decision, and my job as CIO should be to make it work. And, I hope the faculty don't care if we run OpenVM, Linux, Apache or MySQL, that's how I'll make their applications work, automagicaly.

[8] http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9004723

6.2.5 Open Source Software Goes to Eleven

Figure 6.7

Often in an effort to show added value, proponents for an open source application will include the benefits of open source development, for example, the ability to customize the application for campus-specific needs. This was just the case when I attended the recent NERCOMP/EDUCAUSE Conference and sat in on a presentation discussing a campus' recent migration from Blackboard to Moodle. The presentation started off with, what I feel where several salient issues; why they felt it was time to re-evaluate their on-line teaching and learning tools, how they identified and evaluated the various offerings (feature set, licensing, etc.) and, migration and training issues. These topics where all specifically related to their department's business practices and campus/faculty/student needs in on-line education. Unfortunately this was only half of the hour-long presentation. The second half was devoted to technical issues and presented by a PHP developer who was introduced as, "someone you really needed to have if you are going to run an open source LMS." The topics discussed were; setting up a server (both hardware and software), downloading and installing Moodle and MySQL, development tools, working with the Moodle community in development and finding support, and even examples of both their customizations and supporting PHP code.

Why would these issues be of concern for faculty, instructional technologists and others evaluating the functionality and usability of learning management systems? If this had been a presentation on migrating to Angel from Blackboard, would the second half of the presentation be seen as important, even relevant, with issues like; how to set up IIS, SQL Server, using Visual Studio, Nuggets development and .NET? I doubt it. I suspect most in the crowd would have assumed that their campus' IT department would just set it up and support it.

Like customization, collaboration is also frequently cited as a reason to adopt OSS. The idea is that because OSS is developed in an open community where achievements are shared, end-users can leverage this development to increase functionality. And this is true. Scrolling through many open source project forums yields plenty of how to's, fixes and patches, tips and tricks, etc. Last year, a debate arose about who the Sakai community was and who it best served. I added to the debate within the Sakai discussions:

> *I have found Sakai, the community, to be a welcome discussion (and often education) on many of the issues I am dealing with in my organization such as: legitimacy of Open Source, portals/frameworks, scope of services (redundancy of functionality across systems), technology issues, etc. The knowledge base and experiences of the people within the Sakai community, whether they are actually contributing code or not, or whether they are even running Sakai on their campus, is a valuable resource for me as I work within my own organization.*
>
> *As a technologist, I would not define myself as an educator. I have never held a faculty position and the only teaching I have done has been technical workshops. So while I find both the Sakai discussions, as well as the Sakai community, extremely valuable, I wonder if what we are discussing, and is of interest to me, would also be useful to others with different interests and backgrounds?*

I was essentially asking, how valuable is the community and collaboration for end-users? In order to find out I researched the discussion forums and measured the number of posts per topic, from the very technical such as "development" where code was discussed to areas like "pedagogy" where instructors discussed the use of Sakai in the classroom.

The results showed that technical discussions dominated, for example the "development" discussion accounted for just over 71% of the total Sakai discussions, while pedagogy accounted for 1.58%. I don't know if this is typical, but I suspect other open source forums would yield similar findings, think of SourceForge. Now I can think of several examples where there are great, end-user driven discussions taking place that provide users with best practices. Keeping to the LMS theme, the LAMS global community is a website for teachers where they can share LAMS sequences. But I would assume many find Blackboard's users groups where, "thousands are standing by," helpful as well.

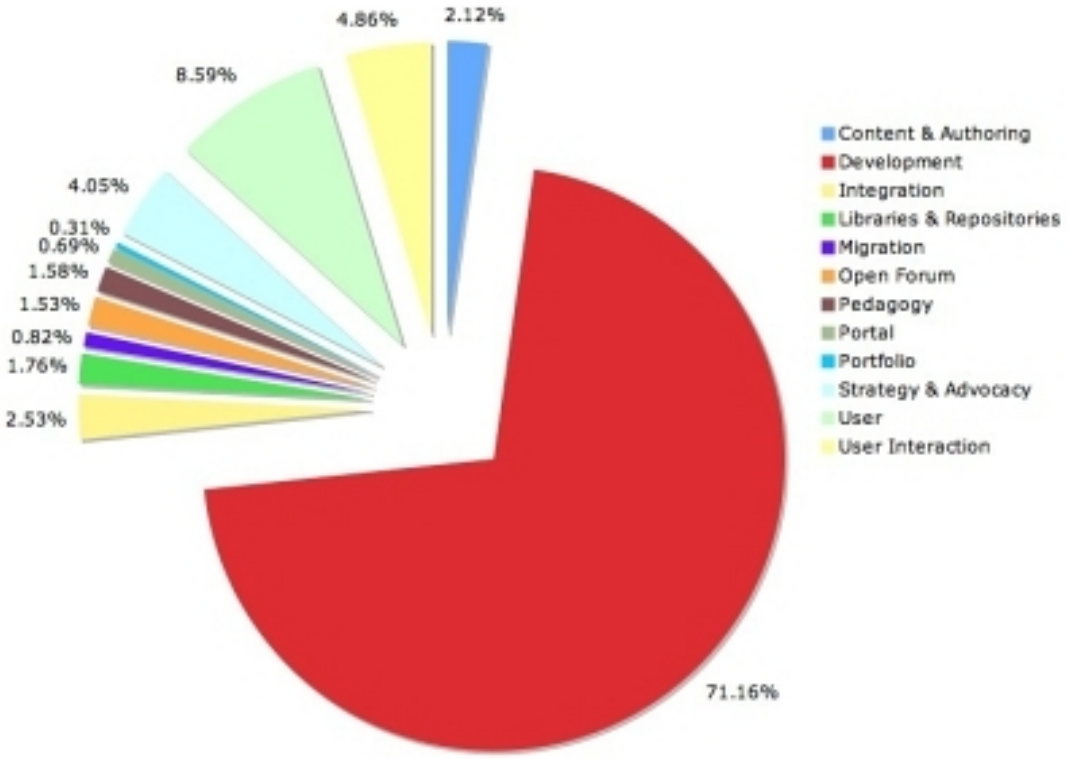

Figure 6.8

The value of collaboration and community in open source is a technology issue that provides for higher quality code, rapid development, etc. And, while there is no doubt in the value of community and collaboration for end-users of an application, it is not solely delivered through open source as many commercial providers have excellent user groups.

The above examples of open source development, code exposure and collaboration, are just two examples of how software practices and software applications can be confused. Including open source and community development practices as a benefit in a department's analysis matrix does not show any real value for a particular software application. These practices are critical factors for highlighting the value of open source as a development process, but not for the specific software that may be under consideration as a packaged feature set.

6.2.6 How Many Licks Does It Take To Get To The Data Center Of Your Campus?

All of the above leads to a fundamental question, "What role should end-users play identifying specific software?"

Ok, get ready, here is what's going to get me in trouble: the answer, "one, two, three... they should not be identifying specific software." End-users should be developing feature lists, functional requirements, use cases, business rules, workflow, etc. Using these and working with IT staff, potential software candidates can be identified that not only fit the needs of the academic unit, but the technical architecture of the data center. Too often I have been presented with solutions first. Issues revolving around customization (scope of

services), support (service level agreements), licensing (total cost of ownership) should be the responsibility of the IT department. This group will best know how to enhance and to integrate software, align support through existing providers or identify new ones, and to assess the total cost of ownership against current resources. If, as an end-user, you and your department are expected to carry out technical assessments, analysis and recommendations, I would suggest your IT department is broken.

Quite honestly, we should not adopt an application simply because it is open source, just as we should not adopt software just because it is commercial supported. I firmly believe that the tenets of open source and community development create better software and therefore assume its presence will grow in adoption. But the responsibility for end-users in software analysis should be in defining functionality requirements and business needs, not in design, development, deployment or support.

6.2.6.1 Responses

9 Responses to "Barriers to the Adoption of Open Source: Personal and Professional Observations"

6.2.6.1.1 1. richardwyles - 18th, 2007 at 7:30 am

Hi Pat, Overall, I concur with much of what you're saying but for it to work it's unfortunately reliant on a very smooth service channel between IT and the Faculty and that's rare in my experience.

In this discussion we must draw out the distinctions between operating systems, web servers and application software that sits upon the network infrastructure. The key difference for me is that we want end-user innovation to drive changes in our VLEs - operating systems etc. is less important for educationalists as that is further back from the interface with learners.

eLearning is at the nexus of technology and learning. It is not enough to simply define functional requirements and hand it over to the IT department to make it work - that is unless the IT department is on board with constant change, testing new features, pushing the boundaries of online learning with new features etc. - i.e. innovating. This doesn't necessarily mean feature development but will almost certainly mean gluing new functionality together. This is why the decision-making process for OSS vs proprietary does venture into areas beyond the IT department and thank goodness. It is precisely because it is so much more difficult (there's longer time lags, there is little control over your immediate destiny) to innovate using a proprietary eLearning platform that the decision to opt for open source becomes a hotly debated issue and one that Faculty has a stake in.

While I don't know the details, I think the story at Athabasca is interesting in this regard. The CIO had decided to upgrade WebCT to WebCT Enterprise - this caused an uproar from the faculty departments and they had the decision changed. My understanding of it was that this had very little to do with functional specifications and more to do with freedom going forward.

In my earlier post I stated that we barely looked at the feature set when evaluating the platform that would be central to the NZOSVLE project. Instead we were looking for an overall architecture and community that would provide flexibility for a future we couldn't fully foresee (we knew it would be dynamic, fast-moving and demanding though). If in 2003 we had put together a functional requirements list and handed it to our IT department then they would have done a sensible thing and selected the best product to fit the functional spec. I suspect we may have ended up with Blackboard. If so then we wouldn't have networked LMSs like we do now...maybe some proprietary platform can offer it but Blackboard can't yet so we would be behind the 8-ball.

I agree that the "someone you really needed to have if you are going to run an open source LMS" PHP and community development session does come across as strange. I think it's perfectly fine for end-users to have it as a turn-key, just make it work solution. Many of our institutions do just that and we have SLAs to cover that. But, and this is a big one, they are far more comfortable in the knowledge that they can commission a customisation, have it tested and deployed, and operational more cheaply and more quickly than is typical from a proprietary software vendor.

In our situation here, it was only through wresting control off of some of the IT departments that we were able to make some real headway with our e-learning infrastructures. I guess this led to a situation where we were saying we using these IT guys rather than those IT guys so perhaps the point is moot. In an attempt to clarify (and be provocative ;-) , in my experience education institutional IT departments have too much control over who can do what - e.g. Skype policies, locking down certain file types in the VLE etc. That's in my experience, I'm not saying it's not possible. To take your argument one step further, if the end-users were to provide their functional requirements but also add a bullet point that they want it to be open source to ensure freedom to innovate, flexibility and future-proofing (leaving aside budget issues), and then the IT dept. were to readily accept that logic and deliver the deployment and support of an OSS solution then...bingo. Ideally (smile), in other circumstances where the end-users haven't really given any weight towards flexibility and innovation, the IT department weighs up the functionality requirements on their behalf, and selects OSS in any event (total cost of ownership, ease of integrating with other parts of the enterprise etc.). Over the past few years OSS options in the VLE market have grown in maturity to such a degree that, like you say, it comes through as a solid decision in both scenarios.

Cheers Richard

6.2.6.1.2 2. Ken Udas - April18th, 2007 at 12:55 pm

Hello. Well this is great. I want to put one or two things on the table that I think flow from both Pat's post and Richard's comments. I do think that requirements should be guided by the end user and when necessary the translation can be facilitated through multiple professionals. So, when a faculty member indicates that she want to be able to support "group work" and assessment based on ongoing development of socially derived artifacts, there is somebody who can identify how those needs will be functionally supported. That is, the functionality of the application.

That's fine on one level, at least for the faculty member mentioned above, but at some point we know that she is going to want something else because her needs will evolve. This is predictable, and a good administrator will recognize this and somebody has got to ask the question about the extensibility of the application relative to teaching and learning functionality. Another administrator will also look at growth rates of his institution and will ask how the application will perform in 3 years when our enrollment have increased by 120%, etc. These, becomes architectural issues that require translation for the faculty members or administrators with needs, but do possess the technical competence or understanding to evaluate the options. This would hold true also for needs that point to the benefits of open code and fee free applications.

My point here is that we might want to evaluate software based on qualities that meet our needs, as Pat suggested at the end of his post, but find ways to ask the right questions and translate the questions into qualities. There are differences between the value propositions around Free Software[9] as discussed in Wayne's posting and proprietary software. I think that some of the differences are exposed through the Business Readiness Rating model[10] (BRR) that outlines ways to assess and evaluate open source software.

Can we acknowledge the differences in Free and proprietary software without making OSS a point of debate and fear among faculty, administrators, etc? That is, is lauding the benefits of free software a distraction? If so, are there methods that help prevent the relevance of OSS from becoming a distraction?

6.2.6.1.3 3. richardwyles - April 18th, 2007 at 4:06 pm

Hi again, perhaps it is a distraction, but I think on balance it is not, it's just that the nature of the discussion is confused between technology and the framework that it resides in. The nub of what Pat is saying is that technology choices to deliver desired functionality should be left to the professionals who are paid to deliver these services - on that, in principle, I agree.

But I wouldn't describe OSS as a technology choice, nor is proprietary - they are umbrella terms that describe modes of production and each has distinctive characteristics that are well documented. MySQL is a technology choice, as is Oracle etc.

[9] http://freedomdefined.org/Definition
[10] http://www.openbrr.org/

So perhaps the middle path here is that the decision-making process over mode of production is a broader discussion that faculties, eLearning units etc. clearly have a stake in when it comes to customer/student facing applications - vs the brass tacks of "making things work". In other words, once the strategic framework is in place then let the IT professionals get on with it.

Thanks Pat, great to have dialogue over an area that is really at the heart of using OSS.

6.2.6.1.4 4. Ken Udas – April 21st, 2007 at 11:16 am

Pat, Richard, or anybody else who has some insights or thoughts. I am very intrigued by the discussion of software "Governance" in your post. I am interested in finding out how you might see governance working optimally relative to informed evaluation, selection, adoption, and use of OSS. That is, can you outline a simple model or cite some examples of the type of governance you think would address the issues that you have raised?

I have worked in a number of institutions that show different proclivities regarding locus of control and predisposition to commercial software, community supported OSS, and just building internal applications. I would have to reflect a bit on this, but I bet that different governance arrangements that include different stakeholders would show different software adoption patterns, and I would imagine, different cost structures, different levels of client satisfaction, and ultimately different levels of positive impact on the academic enterprise.

Perhaps a perspective from a vendor or OSS community leader/contributor would be interesting.

6.2.6.1.5 5. Ken Udas - April 23rd, 2007 at 5:05 am

Pat, you seem to be suggesting a division of labor. The end users should be responsible for knowing, defining, and articulating the functionality requirements, and the IT department is responsible for making them happen automagically, while not confusing the issue with technological concerns about OSS and proprietary software.

This might be fine for decisions made "low on the stack", but do you think that it is too late for other applications that end users relate more closely to? OSS is a major topic now among end users and academic decision makers. As a CIO how do you handle the end user "in the know" who actively pushes the OSS question because she knows that Moodle or Sakai is OSS and has "technical" questions about the topics you touch on above (code quality, support, etc.) You know, questions like "What do we do if the guy who wrote the software dies?" At what point do you have to engage the end user in "technological" issues about OSS?

Or, perhaps even a tougher question, how do you handle the end user who claims that WebCT is the appropriate solution because the vendor at a conference indicated that WebCT is "Open Source" because at the appropriate purchasing point you can build your own functionality into the application through PowerLinks?

6.2.6.1.6 6. Pat Masson - April 23rd, 2007 at 6:08 pm

Wow so many good comments and such a poor response rate on my part. Those of you living in the Northeastern U.S. will forgive me as the weather has been wonderful (the first of the season). Starting from the top down...

Richard is spot on, this approach is very much "reliant on a smooth service channel between IT and the Faculty and that's rare in my experience." And as many would probably admit that this is not the norm–however it is what I think we in IT should be striving for.

I hoped in mentioning software "low in the stack" was to question a belief, by those outside the IT department, that open source educational tools will enjoy the same adoption process that OSS went through in the data center. I don't think it will, yet I hear this quite a bit as those promoting OSS reference other successful projects like Apache and Linux. The push back is longer coming from IT departments, it is coming from other campus administrators: Finance (where is the service agreement), Faculty (help desk, training issues), etc. Basically if you found a great tool for teaching and learning, you don't need to convince me

that OSS is a viable option, its probably your department chair, Dean, Provost or President. So the existing debate has to evolve that really discusses the value an application (open source or not) can deliver.

I hope that I did not leave readers with a perception that vendor lock-in, community and collaboration, etc. are not applicable to end-users' requirements. These all can (and in my opinion should be) part of the evaluation criteria. Just as one may consider the strength of a company, its important to look at a community. However the code review, documentation and QA processes a community of developers might evaluate a project on is different than how faculty and students may evaluate the same community, with interests in usability, the enhancement process, delivery, etc. Again I cite my Sakai numbers.

I feel sorry that, in Richard's situation, he had to take control of his own IT needs in order to get things done. I wonder why? Maybe I am wrong and we IT folks have not come to accept OSS at the rate I had believed. However, I would be extremely embarrassed, professionally, to know that I had a group leave because they felt they could not get the support they needed. Even more embarrassing would be knowing that group (that non-IT group who don't know what they are doing) pulled it off.

So again I'll agree with Richard and risk my CIO membership card, IT departments do have too much to say over who can do what (don't tell my faculty that). A little side story... We recently hired a Director of Online Learning. This position was placed in the IT department before my recent arrival. (Why... another potential topic: where does online learning belong?) Although the position reports to the CIO, I told our new hire that I would be working for him. How am I qualified to define the tools and thus teaching and learning? I can't, and that's why we hired him.

Ken articulates, much better than I, the relationship that should exist between professionals with different roles and responsibilities. In fact, in my new position here at Delhi, I have introduced his Organizational Analysis, Audience Analysis and Project Goals worksheets that he introduced to me while at SUNY... ...with a few modifications.

Many IT departments have "work requests" "project proposals" etc. These however, seem to force a separation between users who request and IT who grants, sort of a "we better get this proposal right or we won't get our widget," us vs. them culture. So building on the good work of the org./audience analysis, I've morphed these into an interview process where IT staff can build a use case from the topics of the templates and discussions that result. This all takes place in a wiki where others who may be interested can contribute. The goal is to avoid solutions, and define problems: "We need LAMS" vs. "the asynchronous courses will consist of group work and assessment based on ongoing development of socially derived artifacts" respectively. (Ken, tell me what this means later, I feel guilty citing it in ignorance). This has been very very challenging as both groups fall back on old patterns.

> *"Can we acknowledge the differences in Free and proprietary software without making OSS a point of debate and fear among faculty, administrators, etc?"*

I think so as long as the debate focuses on usability, functionality and business cases, not technology. I wonder what percentage of presentations at your favorite LMS conversion (ANGEL User Conference 2007, Bb2007, MoodleMoot06 and the 7th Sakai Conference) will be dedicated to technology vs. teaching? Hmm, hold on...

...Ok after a rough hand count of the agendas posted on each LMS's convention page, I found: 84.6% of presentations at the 2006 MoodleMoot where specific to teaching and learning, 77.8% of Blackboard's where educationally focused, 74.6% of Angel's and 38.2% of Sakai's where presentations on teaching and learning. From an IT perspective Sakai wins, from a teaching and learning perspective, I imagine faculty would get more from Moodle. Both open source, two different arguments for adoption.

And fortunately, Ken, I don't think its too late. I suggest a new term, "edumagic." It's the pedagogical counter to the technological. If I say this is not JSR-168 compliant, you tell me it's not IMS-LD compliant. So yes, I am definitely advocating for a division of labor. I have been very fortunate to work with several people who I (and many others) consider experts in their fields. Who am I to tell them what they need, or what they can have? Should facilities define teaching in a physical classroom?

But what do I say to those who may have technical questions? I answer them. If they want to know why an OSS project can be just as reliable, even more so, than a commercial option, I will tell them what I believe.

I would also hope that I have their respect, and confidence, so that they know I would not recommend an application with such poor participation where one death kills the project. And that's my responsibility, a responsibility I gladly take. So then I would follow-up with what should be more relevant questions for her, focusing on her needs, and tapping her expertise: that's her responsibility.

And finally, I would be happy to share my developing IT Governance and Management documentation from Delhi (https://snydelwd.delhi.edu:8443/x/DAE[11]). It is still under consideration, as I try to unite my management experience and practices with my new institution. It would be nice if one could deploy and rely on a universal model. However, in my experience, I believe the truths to be universal but the implementation to be practical.

6.2.6.1.7 7. Pat Masson - April 23rd, 2007 at 6:16 pm

Wow, many typos above, that sun can really get to you!?!?!?

6.2.6.1.8 8. Ken Udas - April 24th, 2007 at 2:43 pm

Would you suggest that the impact that OSS is likely to have in the educational environment has something to do with the ability of the IT team to translate end user requirements into technological qualities or characteristics? If so, are there different skills, techniques, approaches, knowledge, etc. that an IT department must have to successfully translate end user requirement for OSS and for proprietary software options?

6.2.6.1.9 9. Pat Masson - April 26th, 2007 at 1:24 pm

Ken, Wow this is a huge question. As briefly as possible, to reflect on this question, I would consider the differences in how technology was planned for and delivered on campuses in the past vs. how I would argue it should be today: the centralized "mainframe" that delivered your "ERP solution" vs. a distributed SOA environment, respectively.

It reminds me of an old Wendy's ad (http://www.youtube.com/watch?v=5CaMUfxVJVQ[12]) where the tag line states, "Having a choice is more fun." Think of your ERP 10 years ago (even today). As expectations (dare I say needs?) in functionality by end-users grow from what was once simply access by a few to a centralized data store used for record keeping, to very business specific functionality available to many people, ERP has struggled to keep up. Think of your student information service (in my case Banner), what was once only student records, has grown to include, finance, financial aid, alumni, human resources, etc., now even the Luminis Portal. But consider your actual portal options, Academus, Oracle Portal, uPortal, SharePoint, WebSphere etc. From an ERP approach, as a Banner school, I should be adopting Luminis for SUNY Delhi. But wait, we also run Blackboard (WebCT), maybe I should consider Blackboard's portal?

IF IT decides which portal to provide, our decision would probably be based on currently supported technology infrastructure (our ERP and supporting technologies). IF faculty decide they would probably choose Blackboard's portal as it is probably seen as a logical extension of the currently deployed LMS.

I guess I would stop and ask, "Why do we want a portal."

- So the first "skill" needed is the ability to work with end-users to draw out functional requirements, define usability to develop use cases, manage development (not just deployment), etc. This might mean that a CIO/IT Director should have a development skill-set rather than a procurement skill-set, or even a business skill-set. It's use cases vs. surveys, it's agile methods vs. serial processes, it's iteration vs. planning, it's integration vs. installation, it's facilitate vs. mandate, should I go on?

However there are other skills as well...

[11] https://snydelwd.delhi.edu:8443/x/DAE
[12] http://www.youtube.com/watch?v=5CaMUfxVJVQ

- The actual technical understanding and skills around integration and interoperability of Service Oriented Architecture that a traditional department may not be accustomed to in an ERP environment. After all, installing the next module in a homogeneous ERP environment is much different then integrating two disparate applications.
- The political savvy to gain buy-in from; your IT department that will require new practices, your faculty who will no longer be able to work with a "solutions first" approach, your colleagues in business offices and the faculty that will be required to provide dedicated "Product Managers" to constantly assess and define functionality and usability and work as a compliment to IT's "Project Managers," and finally, your administration who will need to provide better answers to, "Why do we need a portal or an LMS, etc."

6.3 Summary[13]

6.3.1 Summary - Barriers to the Adoption of Open Source: Personal and Professional Observations

"Barriers to the Adoption of Open Source: Personal and Professional Observations," the fourth installment of the Impact of Open Source Software Series, was posted on April 18, 2007, by Pat Masson, CIO of SUNY Delhi. Thanks Pat!

6.3.2 Open Source Software is not a Technology Issue.

Pat starts out with the observation that the debate around Open Source is no longer really about the technology. Many of the issues around support, quality, and functionality are pretty much settled. Open Source Software is widely used in the commercial and educational sectors and increasing numbers of vendors are contributing to OSS communities and integrating OSS into their offerings. In addition, Pat cites instances in which the agile design and development process indicative of OSS has been adopted by commercial vendors. So, the debate in the commercial and educational sectors among technologists is pretty much over, while academic decision makers are still debating about OSS, which has become the adoption bottleneck.

6.3.3 You're Soaking in I.T.

The use of OSS in academic computing is sometimes invisible, because it meets the requirements, the end users or academic decision makers are not even aware that they are using OSS. As the academy increasing depends on software to support mission critical tasks and as OSS becomes ubiquitous across application and system classes, who will make decisions about the use of OSS? Pat takes this a step further by discussing the differences between how the treatment of OSS low in the software stack relative to very visible applications differs. He points out that software low on the stack that is OSS meets with little debate and has virtually no visibility to academic decision makers, while applications at the top of the stack or residing on the desktop are treated differently. This is captured in the following question, "How many of the folks governing online education and debating Moodle are also debating the LAMP stack?" In addition, it is pointed out that because vendors are adopting OSS, but not advertising the fact, many academic decision makers are selecting OSS based applications without knowing it, so they treat OSS objectively. Pat suggests that this is an overall governance issue and a function of awareness of academic decision makers relative to software across the stack.

6.3.4 Any sufficiently advanced technology is indistinguishable from magic.

Because many end users, just want the software to work, OSS has become a default option in many IT shops because of the clear technological benefits of exposed code and an open distribution license. Pat asks the

[13] This content is available online at <http://cnx.org/content/m14710/1.3/>.

rather rhetorical question about what level end users and academic administrators should be engaging in dialog about software. Should it principally be about a) the underlying architecture, b) development methodologies, or c) the application itself (functionality)? Pat indicates that the productive part of the conversation, if we want end users to think about software as a tool to get stuff done, is around the functionality of the software, not the technology. That is, does the software function appropriately and meet business needs? When this is the focus, OSS will be viewed, from the end user perspective, the same way as commercial software. The idea is that focusing on functionality, reduces the unfounded technological concerns of many academic end users, allowing the IT department to assess the technological merit of the software, which would include the quality of the code and the ability of the OSS community and associated organizations to do the right thing by the adopting organization based also on the adoptor's capacity. The punch line is about division of labor. The end users should be responsible for knowing, defining, and articulating the functionality requirements, and the IT department is responsible for making them happen automagically, while not confusing the issue with technological concerns about OSS and proprietary software.

6.3.5 Open Source Software Goes to Eleven

Pat argues that there are topics that are most appropriate to academic decisions makers and faculty. They tend to be around functionality and usability rather than how to download, install, and configure a LAMP environment. Pat asserted that much of the value of open source community translates to improved code and support for technologists. Although the forums can be very helpful to end users, active user forums are not unique to OSS, but are evident also in proprietary communities.

6.3.6 How Many Licks Does It Take To Get To The Data Center Of Your Campus?

In the end, Pat asks us "What role should end-users play identifying specific software?" His answer is that they should not be identifying specific solutions. They should be developing feature lists, functional requirements, use cases, business rules, workflow, etc. and working with the IT department to ensure that the options meet their requirements.

6.3.7 Comments

Many of the comments that were made following Pat's initial posting were mutually reinforcing, serving to clarify and refine some points. Most of the comments focused on the appropriate relationships between IT professionals and end users of educational applications and systems. Pat's contention that one of the roles of an IT professional is to act as an interpreter or translator for end users was reinforced, but also challenged by Richard Wyles as being circumstantial, pointing out that the differences between OSS and proprietary software is frequently not technological. This being the case, a typical IT shop might not be so qualified to assess OSS and the supporting community. It was clear that the discussants agreed that there are differences between OSS and proprietary software, that the differences are important under many circumstances, that sometimes IT professionals are not in the best position to explain the differences, and that sometimes end users are not in the best position to understand what are the important or relevant differences, and these are some of the factors that mitigate the current impact of OSS on education.

Chapter 7

FLOSS, OER, Equality and Digital Inclusion (Kim Tucker)

7.1 Introduction - Kim Tucker[1]

7.1.1 Kim Tucker - Introduction

Figure 7.1

Kim will be writing on a number of related topics that integrate Free Libre Open Source Software[2] (FLOSS) and free knowledge and equality in education, while also posing questions about what we mean by equality in education and the implications for digital inclusion. The term "libre" distinguishes freeware (gratis software) from free software[3] , which encompasses use, modification, and distribution.

Kim is currently working as a researcher at the Meraka Institute[4] , managed by the Council for Scientific and Industrial Research[5] (CSIR) in South Africa. The main focus of his research is the introduction of technology and collaborative learning opportunities, and FLOSS for knowledge sharing and education. Kim also provides general advocacy of FLOSS and libre knowledge. His background includes some cognitive psychology, computer science lecturing, environmental decision support-systems development and other aspects

[1] This content is available online at <http://cnx.org/content/m14713/1.3/>.
[2] http://en.wikipedia.org/wiki/FOSS
[3] http://freedomdefined.org/Definition
[4] http://www.meraka.org.za/
[5] http://www.csir.co.za/

of software development (Java, architecture, patterns, agile methodologies, etc.), and conservation biology (M.Sc.). Given this background, he has an interest in knowledge patterns, collaboration, and knowledge transfer across disciplines. In the context of Open Educational Resources (OER) he likes to promote the concept of "libre learning," emphasizing the freedoms that users of OERs (or, rather, "libre" resources) should enjoy to permit unrestrained social constructivist (student-driven) learning in the emerging "rip, mix, and share" culture.

7.2 FLOSS, OER, Equality and Digital Inclusion[6]

NOTE: Author - Kim Tucker, "FLOSS, OER, Equality and Digital Inclusion". Originally submitted May 2nd, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

7.2.1 FLOSS, OER, Equality and Digital Inclusion

This posting is intended to direct the discussion towards the rationale for software libre[7] in education and the broader impact on sustainable development[8] .

I start by revisiting the topic for the series, and share some experiences to re-emphasise a few of the points made in previous postings. I move on to recontextualise the discussion with respect to the big picture, pose some questions for discussion and invite participants to suggest additional questions which may arise

7.2.2 Topic Revisited

Regarding the topic, "Impact of OSS on Education," I suspect that both education and software development are subject to similar influences as technology enables connections among people with common interests and learning needs.

For example, it is difficult to determine the impact of FLOSS[9] (Free Libre Open Source Software) on education - the context is enabling educators and learners to benefit from the connectedness FLOSS communities have enjoyed and made good use of for more than a decade. Knowledge sharing across FLOSS and OER[10] communities seems to have streamlined (stimulated, facilitated and catalysed) FLOSS adoption and technology-assisted collaborative learning in the education space. Several FLOSS projects have been pedagogically inspired (e.g. Moodle[11] , Fle3[12] , Kewl.NextGen[13] , etc.), while others have been orientated (initially or primarily) towards administration (e.g. Sakai[14] , SchoolTool[15] , etc.).

FLOSS communities, and more recently Wikipedia communities, have been inspirational in demonstrating what can be achieved through commons-based peer production[16] . We are rising to the challenge of realising this level of success in education through libre and open resources for education. Efforts in this direction include Connexions[17] , Wikieducator[18] and eXe[19] , Le Mill[20] , EduCommons[21] , Wikiversity[22] , and many

[6] This content is available online at <http://cnx.org/content/m14729/1.5/>.
[7] http://en.wikipedia.org/wiki/Software_libre
[8] http://en.wikipedia.org/wiki/Sustainable_development
[9] http://en.wikipedia.org/wiki/FOSS
[10] http://en.wikipedia.org/wiki/Open_educational_resources
[11] http://www.moodle.org
[12] http://fle3.uiah.fi
[13] http://avoir.uwc.ac.za
[14] http://www.sakaiproject.org/
[15] http://www.schooltool.org/
[16] http://en.wikipedia.org/wiki/Commons-based_peer_production
[17] http://cnx.org
[18] http://wikieducator.org
[19] http://exelearning.org
[20] http://lemill.net/
[21] http://educommons.org
[22] http://www.wikiversity.org

more.

All of these run on FLOSS platforms, all have followed open (transparent) development processes, and all carefully consider open standards and reusability of learning components (variously called learning objects, iDevices, etc, ...).

However, for reusability in education, "localisation/ recontextualisation is always required." The educational and learning needs vary across contexts. Interestingly, agile software development teams seldom code for re-use unless development of re-usable components is core to their business (Alistair Cockburn, late 1990s, Cape Town; see for example DoTheSimplestThingThatCouldPossiblyWork[23]).

Note that this type of peer production activity has been most evident in the "developed" world. Yochai Benkler[24] emphasizes that most of his research on peer production has focused on the more powerful economies.

1. Is the learning from and between FLOSS, OER and other peer production case studies applicable in "developing" economies?
2. What are the priorities for education, and how could FLOSS have an impact?
3. What are the motivators and barriers to FLOSS adoption?
4. If we were to overcome those barriers and provide physical access to the world's knowledge resources (via FLOSS), would we achieve "equality"?

7.2.3 A1. Is the learning about FLOSS, Open Content and peer production applicable in developing economies?

Most of the population does not have access to the facilities that enable peer-production (personal computers, the Internet and high bandwidth). However, the cultures seem well disposed towards collaborative knowledge production.

"Developing" countries typically include "developed" areas functioning as part of the global knowledge economy.

Conversely, some "developed" countries face challenges normally associated with "developing" countries (such as poverty, health issues, unemployment, unequal access to education and public services, etc.) - though the scales may be vastly different.

Developing countries are generally not entrenched in set ways of using ICT in education. This is an opportunity to develop, adopt and adapt new and contextually appropriate approaches, and to build innovative supporting software infrastructures to address local/regional needs. FLOSS, free/open content, open standards, and free file format[25] s permit this freedom to innovate[26] .

By addressing the issues where they can be addressed, we will be better prepared to service new areas and people when they become connected (for example, if software and learning resources are already localised)

7.2.4 A2. What are the priorities for education, and how could FLOSS have an impact?

In many schools, the priorities are for buildings, water supply, electricity, nutrition for the learners, health, etc.. These needs mirror those of the communities. If ICT[27] (Information Communications Technology) is indeed an enabler for meeting development needs, then the priority software and knowledge resources are those which facilitate access to knowledge on sustainable agriculture, primary health care, technical/vocational and entrepreneurial skills, and survival in the relevant context.

There is a worldwide shortage of teachers, and learners do not necessarily have parents available to support them in doing what it takes to get an education.

[23] http://c2.com/xp/DoTheSimplestThingThatCouldPossiblyWork.html
[24] http://www.benkler.org
[25] http://en.wikipedia.org/wiki/Free_file_format
[26] http://www.ftisa.org.za
[27] http://searchsmb.techtarget.com/sDefinition/0,,sid44_gci928405,00.html

HIV AIDS is having an impact on the age pyramid in developing countries, eroding not only the aged cohorts, who form a key part of the extended family support systems, but of the current adult generations. The result is a lack of leadership from the aged, a lack of income and parental care, and care for the aged - a lost generation "Beyond Thunderdome."

Institutions might (initially) prioritise administrative software over pedagogically inspired technology and resources. Learners the reverse, and educators need both. FLOSS packages for both of these functions are gradually being integrated.

Efforts to localise software may lead to redesign and development of completely new systems after analysing the local needs.

Creating one's own educational resources, relevant to the local context, may prove easier and more effective than re-using resources obtained from elsewhere.

Priorities may be viewed from a global level. For example, FLOSS and open content show great promise towards the "Education for All" goal (UNESCO[28] and others), and are key enablers towards achieving the Millennium Development Goals[29] .

7.2.5 A3. What are the motivators and barriers to FLOSS adoption?

Motivators

In South Africa, after some lobbying by technical people with an understanding of the broader implications, the motivation for FLOSS adoption in government was driven top-down. The intention is to release funds previously earmarked for software licensing for use in capacity development and for addressing other development needs, while developing the local ICT industries and effecting self-determination (at least in terms of the software we use). The following documents were produced as part of the process:

- 2002 Open Software & Open Standards in South Africa: A Critical Issue for Addressing the Digital Divide http://www.naci.org.za/floss/[30]
- 2003 Using open source software in the South African government: a proposed strategy compiled by the Government Information Technology Officers' Council http://www.oss.gov.za/[31]
- 2004 Free/Libre and Open Source Software and Open Standards in South Africa: A Critical Issue for Addressing the Digital Divide http://www.naci.org.za/floss/[32]
- 2005 Declaration on the South African National Strategy on Free and Open Source Software and Open Content ("National Open Source Strategy") http://wiki.go-opensource.org/taskforce/[33]
- 2007 Policy on Free and Open Source Software use for South African government http://www.oss.gov.za/[34]

However, some government departments have gone ahead of this process and conducted partial FLOSS migrations of their own. I expect this type of "do what is needed" will continue with innovative individuals leading in response to the needs of the communities they serve.

Motivation at other levels typically relate to improved software development processes, greater flexibility and reduced licensing costs.

A key motivator implicit in this posting is to do the right thing.

Barriers

The barriers to FLOSS adoption were discussed previously (see posting by Pat Masson). More generally, in terms of participation in the knowledge society, using current technology, there are several building blocks which reflect part of the challenge we face for maximum impact:

[28] http://en.wikipedia.org/wiki/UNESCO
[29] http://www.un.org/millenniumgoals/
[30] http://www.naci.org.za/floss/
[31] http://www.oss.gov.za/
[32] http://www.naci.org.za/floss/
[33] http://wiki.go-opensource.org/taskforce/
[34] http://www.oss.gov.za/

1. Basic literacy - learn to read, ideally in one's own language.
2. Computer literacy - e.g. mouse, keyboard, files and folders, ..., or the equivalent features on a cell phone, etc.
3. Using office software - for employability.
4. Content (co-)creation - localisation and creation of multimedia knowledge resources.
5. Sharing resources.
6. Engaging in decision making processes at higher levels.

What opportunities do these present to FLOSS and OER developers, and to the communities of users? Which initiatives exist already providing or developing such building blocks? What should be prioritised to streamline participation in the global knowledge society?

7.2.6 A4. If we could provide access to all the world's knowledge and educational resources, would we have "equality in education"? What does that mean?

Equality does not end at "access" unless we define "access" to mean physical access (to a computer or some other device) with sufficient bandwidth, and the ability to use the resources effectively. Relevance of the resources is important, as is the freedom to adapt/modify and share alike.

The barriers alluded to previously apply.

Some General Comments

Early Adoption of FLOSS by the OER Community

The OER community is quick to adopt FLOSS and develop and integrate features to support their learners. Recently, this has been incorporation of Web 2.0 features (mashups, use of resources such as del.icio.us[35] , Flickr[36] , YouTube[37] , GoogleMaps[38] , etc.). This is all great - where sufficient bandwidth is available at all times.

Bandwidth and Learning Resources

Recognising the bandwidth issue in much of the developing world, a group of people came up with the idea of "Education in a Box" which later became "Education out of the Box" - a collection of CDs containing FLOSS and free/open content for Education. The intention was to set up a web site with resources from which one could select and download for use in a local setting. The recipients would be free to use, copy, learn with, adapt, improve and share - i.e. take control of their own destinies and offer professional services (such as localisation, redistribution, support, etc.) enhancing the potential impact of these resources on meeting local needs.

The project did not receive direct funding but was supported indirectly by the Developer Roadshows (OSI, OSISA[39] and OSIWA[40]). It is a "libre project" - anyone is free to take the idea[41] further in their own way.

Initiatives in South Africa which provide FLOSS and free/open content, which have exchanged notes, include the Digital Doorway[42] (minimally invasive education), the FreedomToaster[43] , and tuXlabs[44] . The latter started out deploying FLOSS computer labs in schools, developing an effective methodology for doing this. At last count there were over 240 schools with tuXlabs. SchoolNet Namibia[45] has done something similar with over 340 schools so far. The FreedomToaster provides FLOSS and some free educational content to anyone who arrives with blank CDs/DVDs. The digital doorway provides access to people in environments not normally suitable for computers (on account of crime and vandalism for example).

[35] http://del.icio.us
[36] http://flickr.com/
[37] http://youtube.com/
[38] http://maps.google.com/
[39] http://www.osisa.org/
[40] http://www.osiwa.org/en/node
[41] http://www.developer-roadshow.org/wa/wiki/CurrentContentOfEducationOutofTheBox
[42] http://www.digitaldoorway.co.za
[43] http://www.freedomtoaster.org
[44] http://www.tuxlabs.co.za
[45] http://www.schoolnet.na

For connectivity within a community, the WirelessAfrica[46] project suggests ways in which a community may set up a network. If there is high bandwidth to the Internet available somewhere in the community, everyone may gain access via the mesh.

Computer labs may not be a great way to support learning with ICT in schools with limited resources. One laptop per child[47] is one alternative poised to be launched in several countries in the near future. Mobile phone penetration tends to be much higher in developing countries than for personal computers. MobilED[48] is one project exploring use of mobile phones in education.

In terms of language barriers, there are research projects looking at tools to help with translation, text to speech, etc. See for example, the work of the Meraka Institute's HLT group[49]

Regarding FLOSS capacity building see Open ICDL[50] and Learn Linux[51] as two examples in South Africa. More broadly, a new project is starting to gain momentum: FLOSS4Edu[52] .

The golden thread running through all the initiatives above is the emphasis on FLOSS and sharing the learning - libre knowledge.

I hope the trend generalises towards a vision such as "Enabling individuals and communities to empower themselves with knowledge, towards wisdom, for a sustainable world".

Defining "equality" is difficult, and the challenges around achieving it are significant. It seems to me that best we can do is endeavour to maximise the options and opportunities for individuals and the freedoms to take these opportunities, whatever their context.

The reading list below is indicative of the perspective of this posting.

7.2.7 Reading List and Links

- Yochai Benkler - The Wealth of Networks[53]
- Lawrence Lessig - Free culture[54]
- Richard Stallman - Selected Essays[55]
- Eric von Hippel - Democratising Innovation[56]
- Amartya Sen - Development as Freedom[57]
- Libre Knowledge[58]
- Free Software[59]
- FLOSS research: FLOSSWorld[60] , FLOSSpols[61] and other projects linked at these sites.
- UNDP FOSS Primers[62] .
- Singazenzela[63] - an isiZulu Word meaning 'we can do things for ourselves'.
- Meraka[64] - contributing to the digital meraka (a word used in Sesotho, Sesotho sa Leboa and Setswana to refer to an area of shared land most commonly used for cattle grazing - a commons).

[46] http://wirelessafrica.meraka.org.za
[47] http://www.laptop.org
[48] http://mobiled.uiah.fi
[49] http://www.meraka.org.za/hlt
[50] http://openicdl.org
[51] http://learnlinux.tsf.org.za/
[52] http://www.wikieducator.org/FLOSS4Edu
[53] http://www.benkler.org
[54] http://www.free-culture.cc/
[55] http://www.gnu.org/doc/book13.html
[56] http://web.mit.edu/evhippel/www/books.htm
[57] http://en.wikipedia.org/wiki/Development_as_Freedom
[58] http://en.wikipedia.org/wiki/Libre_knowledge
[59] http://www.gnu.org
[60] http://www.flossworld.org
[61] http://www.flosspols.org;
[62] http://www.iosn.net/foss-primers/
[63] http://www.singazenzela.org
[64] http://www.meraka.org.za

7.2.8 Comments

7 Responses to "FLOSS, OER, Equality and Digital Inclusion"

1. Ken Udas - May 3rd, 2007 at 4:55 am

Kim, I have found this to be a very thought provoking and information rich posting. As I read through the questions that you asked and the abbreviated responses that you provided, I kept returning to a number of related questions of my own. The principal question being:

Is there the need to develop curriculum around commons-based peer development?

That is, would treating commons-based peer development through the formal educational curriculum in primary, secondary, and tertiary education across an array of topics and subject areas strike at equity issues associated with access? Would it help to generate a culture that supports and actively promotes peer development, investment in technologies that support collaborative creation, law that favors (reduces barriers and creates incentives) community production, etc?

If so, it would seem natural for FLOSS and OER to be used as practical applications areas within a curriculum and also serve as sources of examples (artifacts) to be studied and refined. If it were possible to integrate commons-based peer development into an action-oriented curriculum, following for example a participatory action research approach to facilitated teaching and learning, a virtuous cycle could develop in which FLOSS and OER production and use impacts education, formal education becomes directly relevant to societal change, and societal change in turn promotes and is fueled by the use of FLOSS and OER in education. Eventually the application of the skills and patterns developed through the active study of commons-based peer development are also applied to the production of other intellectual capacity (work flows, processes, physical artifacts, etc.).

In partial response to your first question, "*Q1. Is the learning from and between FLOSS, OER and other peer production case studies applicable in "developing" economies?*" I believe that a curriculum that includes commons-based peer development principles would be more likely to thrive in "developing" economies than in developed economies that have a whole value system based on deformed information markets (artificial barriers that impede the free flow of information and ideas).

2. Wayne Mackintosh -May 4th, 2007 at 12:03 am

Hey Kim, Its always a pleasure to read your postings on libre content! Your coverage of cutting edge projects across the globe is impressive and you always provide a wealth of resources and links to what is going on in the field - particularly from the developing world perspective. South Africa is becoming a global leader in FLOSS and free content adoption, and I can assure you that we are learning much from your experiences. Thanks for an informative and challenging post!

The general public may not be aware of this — but your leadership thinking around the concept of "free knowledge communities" which evolved to libre communities was an instrumental catalyst in the foundation of WIkiEducator. Thanks for the inspiration!

I'm very pleased that you raised the issue of bandwidth in your post. Sadly most of the industrialized world uses bandwidth as an excuse to focus on legacy technologies for development at the expense of the potential of digital technologies for creating development futures.

For example - it's relatively easy to develop wiki ==> pdf technologies that would provide access to learners in Africa who do not have connectivity. At COL we are working on funding solutions (with a very restricted budget ..;-( ) to achieve these objectives.

So I guess my question is how do we lobby the donor community and free content projects to collaborate on the technological solutions that will make a difference in Africa?

In other words - how do we make the future happen for Africa using free content?

I can assure you that we'll be collaborating with you to achieve these ideals

Cheers, Wayne

3. Kim Tucker - May 7th, 2007 at 7:09 am

Response to Ken:

I am glad you raise additional questions. Drawing out "good strategic questions" is one of the most significant things we can do in this process.

Questions draw us towards the future ("which will be different from the past" to quote Wayne) ... sowing the seeds of action in the now ....

This is what we tried to do while discussing a research agenda for OER - http://oerwiki.iiep-unesco.org/index.php?title=OER_research_agenda[65] >

Re: Is there the need to develop curriculum around commons-based peer development?

Certainly include cbpp-like learning activities (among others) for most curriculi (learn by doing) - reminiscent of progressive inquiry and social constructionist activities highlighted in FLOSS such as http://fle3.uiah.fi[66] and http://www.moodle.org.[67] [In both of these, developments in the software were inspired by learning theory (and not the other way round)].

For teacher training curriculi ... yes! - facilitating learning via cbpp. If learners have access, collaboration with peers will occur, the challenge for teachers is to become facilitators and keep the learners "productive" towards common goals. In South Africa, it has been our experience that it is difficult to convince teachers to change their ways (another challenge) - building this into teacher training will ensure that the new crop of teachers is well primed.

I agree it would strike at equity issues: enabling people to empower themselves with knowledge and to be able to engage in cbpp.

One of Yochai Benkler's claims is that "when you have the kind of information/cultural production system that wikipedia represents, injected into modern complex democracies, you can see significant improvements in autonomy, democracy and, to a limited extent but with some probability, social justice or at least a more just form of global development." (YB, Wikimania 2006).

My concern is that most people in developing countries do not have access, so such benefits will not be as pronounced or immediate. In the interim, it might be better to assemble connected experts in the countries to produce base educational content of high quality and get that out there however possible (e.g. in printed form as Wayne suggests) - perhaps including peer production-type or social construction activities which do not require Internet access. Again, skilled facilitation may be necessary to achieve inclusiveness among participants.

Re: would it help to generate a culture that supports and actively promotes peer development, ... [and] ... law that favors ... community production, etc?

One thing we must do is question our assumptions, and I suspect there are some in the implicit affirmative answer to this question. Would it help what? (reduce inequalities of access to knowledge/learning?). Whom would it help in what way? (those that are ahead already may simply move further ahead together at a faster rate). When? (only after people have physical access to computers and the Internet?). Why do we think this is important? (will it lead to a sustainable planet and world peace?).

A question which arises for me (which might help map out intermediate objectives) is "Why do we not have such a culture right now?" - Perhaps we do, but behaviour is modified by the restrictive legal and economic climate created by those with a vested interest in outdated business models (Wikipedia, Apache and GNU/Linux exist in spite of the dominant economic models and legal climate). The Creative Commons offers a way round the legal restraints, and we see a blossoming of new business models in the open source world (http://www.opensourcestrategies.org/) and in publishing (e.g. http://icommons.org/2007/03/29/new-business-models-are-catching-on-%e2%80%93-lethem-gives-away-film-rights/[68]).

However, there is still a need to counter the pervading overly restrictive copyright regime.

So, I agree, it would help to embed cbpp activities across the curriculum, and to use FLOSS and free/libre/open resources for education as examples, etc.

Re: the virtuous cycle you described:

The chain might well work. It reminds me of what sounded to me like an empassioned plea from Larry Lessig at Wikimania last year: to demonstrate the benefits of cbpp, sharing of knowledge and a read-write Internet to society in areas beyond Wikipedia. Efforts in the education space (such as Wikieducator, LeMill,

[65] http://oerwiki.iiep-unesco.org/index.php?title=OER_research_agenda
[66] http://fle3.uiah.fi
[67] http://www.moodle.org
[68] http://icommons.org/2007/03/29/new-business-models-are-catching-on-%e2%80%93-lethem-gives-away-film-rights/

Connexions, Wikiversity, Educommons, OCW, etc.) may turn out to be particiularly significant in this regard.

Some education systems are moving in compatible directions. In South Africa there has been a move towards "outcomes-based education (and training)" - OBE(T). http://www.saqa.org.za/show.asp?main=structure/nqf/docs/curricul2005.html&menu=docspol[69]

One would assume that once the required outcomes are defined, there is some freedom permitted in the approach to achieving those objectives. The materials produced in this process are released to the public domain. However, the process seems bogged down in bureaucracy and the complexities of gaining approval from SAQA. It has also proved difficult to convince educators to change their ways towards becoming facilitators of technology assisted learning (rather than fountains of knowledge).

The Thutong portal http://www.thutong.org.za/[70] is becoming "freedom-friendly" by including a meta-data field for the license of learning objects along with a host of others to enable effective search. It is not a wiki environment however, and cbpp is not yet accommodated within the portal itself.

The (world-wide) challenge is to go ahead and create learning resources which embed cbpp among the learning activities, encourage wide use of the resources and the approach, to evaluate and demonstrate the effectiveness. In a Wiki environment (e.g. Wikieducator, Wikiversity, etc.) this is likely to be almost automatic.

Another question that arises is "How do we integrate software development into this process?"

Not everyone can or desires to develop software. I recall learning a lot about ecological processes through modelling. At the time, we mostly used spreadsheets and the programmers in the class were happy to share their knowledge in exchange for ecological insights. Together we produced models which seemed plausible. Although these models were not capable of quantitative prediction, they did illustrate the effects of variables on the systems under investigation, and helped us understand the processes. The key to this is either deskilling software development, or collaboration across disciplines. Raise awareness among FLOSS developers of the needs in education and encourage them to work with educators and learners. This is a good way to demonstrate the value of shared knowledge in problem solving.

[A project I encountered some time ago intended to do something similar for non-profit organisations, though it seems more general now: http://www.socialsourcecommons.org/[71]]

One of the take-home messages from the modelling exercise above was that the real value of modelling is in the learning and insight gained through the modelling process (i.e. as opposed to the models produced or their qualitative predictions).

Here is a useful set of models for learning physics I discovered some time ago: http://phet-web.colorado.edu/[72]

Would it make sense to construct learning activities with incomplete versions of such software – students could then develop the programs (e.g. define formulae) their own way as part of the learning. The complete source code would represent a solution to the exercise?

In a wiki environment, I can imagine pages on specific needs for a piece of software, describing new use cases which software developers might like to implement in collaboration with the learners etc. as part of their software engineering programmes.

In terms of content development, I recently heard of a project using collaborative video production as a means of "crossing cultural borders".

The great thing about software development and video co-production, is that they are sufficiently complex to require some co-planning, role and design negotiation, critical thinking and technical skill. Here is a project which emphasises a general ability which all learners should acquire through school: "... the skill of analysis. ... the ability to break a complex problem into pieces, identify familiar patterns in the pieces, solve them using existing tools, and synthesize the results into a view or answer." http://www.kusasa.org/[73]

[69] http://www.saqa.org.za/show.asp?main=structure/nqf/docs/curricul2005.html&menu=docspol
[70] http://www.thutong.org.za/
[71] http://www.socialsourcecommons.org/
[72] http://phet-web.colorado.edu/
[73] http://www.kusasa.org/

"We want to ensure that learners graduate with this ability, making them effective, successful, productive and fulfilled members of society."

It might be useful to extend some of the ideas here into other levels of education and introduce social constructionist learning and cbpp in the development of the tool

For content production, see also http://www.elephantsdream.org/[74] as an example of an open movie built with FLOSS (www.blender.org) and with production files freely available.

Much of the above type of activity is happening already (links welcome), we are not short of ideas and encouraging such activities can only help - even if it is done in low/no connectivity environments, and is seen as nurturing the existing culture of collaboration and sharing in readiness for cbpp when access for all becomes a reality.

I think we agree that the people in Africa are likely to take to cbpp quite naturally on account of the traditional cultures, and by being less affected by the artificial barriers.

In summary, embedding cbpp across curricular is recommended, and generating a culture of collaborative learning is a good idea, though the impact may be delayed and less pronounced in places where access is limited. FLOSS and collaborative free/libre/open content development may serve as good vehicles to promote cbpp, though the required culture of sharing may be nurtured even without the Internet.

Speaking of peer production, it might be useful to share:

- links to sites and papers of relevance to this discussion.
- research questions
- software – FLOSS for Education.

4. Kim Tucker - May 7th, 2007 at 7:49 am

Response to Wayne:

It is great to see so much happening around libre and open resources for education.

As you have pointed out before, there are special needs in Africa, and the context calls for innovation.

Part of the answer to your question is to facilitate communication across initiatives, and develop a common vision and a common understanding of the context and the way forward.

The context is constantly changing and we need a realistic plan leading towards a desired future.

Here are two perspectives:

1. ALL investment should go into enabling access. Only then do we even think about content, and enable this via the local communities. Actually, it is not about content - it is about learning activities which will be greatly enhanced when it is possible to engage with the global knowledge society.
2. Focus on developing (libre) learning resources among those who have access. These automatically become a foundation as soon as new communities gain access. Moreover, in this process, local skills will be developed to take it forward.

5. Wayne Mackintosh - May 7th, 2007 at 11:58 am

Hey Kim - Enabling access is a strategic priority in Africa - couldn't agree more. In addition to enabling access - I would like to add a left-brain strategy, namely projects which generate universal demand for access - in other words generating the need for access in parallel to technical infrastructure.

For this reason I believe that libre content is a missing link in the chain. Learning activities are derived from our pursuit of knowledge and I suggest that the more free content we can produce - the greater the need for access.

Conceptually it is possible to provide access to the 1.7 million free content articles of Wikipedia by creating wiki ==> pdf functionality. This could be a foundation for billions of learners - especially those without textbooks to high quality content, even though they may not have access to the web themselves.

I was playing around with a use case scenario - still needs a little work, but you'll get the gist of my thinking. See: Thinking creatively about access to free content[75]

[74] http://www.elephantsdream.org/

[75] http://www.wikieducator.org/Metawikieducator/Print_web_service

Chat to you soon. Wayne

6. Ken Udas - May 9th, 2007 at 5:12 am

Response to Kim

Thank you for your thoughtful reply. I appreciate the links you have provided and the questions that you have posed. Together we are generating a lot of questions, and I would like to focus on a small group of them that flowed from a question that I asked in my first comment, in which I asked:

Would it help to generate a culture that supports and actively promotes peer development, investment in technologies that support collaborative creation, law that favors (reduces barriers and creates incentives) community production, etc?

And you followed up with these other questions:

Kim: *Would it help what? (reduce inequalities of access to knowledge/learning?).*

Yes, it seems that complex problems are not well suited to centralized and authoritarian solution generation and decision-making. Traditional "top of the pyramid" oriented decision making tends to disproportionably (sometimes exclusively) respect and reflect the values of the decision maker or the group that he or she represents. This will frequently result in marginalizing, to varying degrees (sometimes extremely), the values held by other less powerful groups. By definition, the decision maker is in some sort of local power position, which might extend to a global scale depending on the nature of the political and economic organization that the decision-maker is representing. I see commons-based peer development as a method to normatively balance concentration of power with the investment of communal decision-making. I was really pointing to commons-based peer development as a way of seeding values in organizations. Education is an important area because of its impact on the development and transmission of values. These values are then imbued, ala Freire, in the cultural artifacts that are created, which could include learning materials, technologies, organizational structure, governance, etc. There is a positively reinforcing cycle that starts with applying principles of commons-based peer development to OER and FLOSS, including the methods in teacher education, and the general curriculum, keeping in mind that curriculum extend outside of the "schoolhouse".

Kim: *Whom would it help in what way? (those that are ahead already may simply move further ahead together at a faster rate).*

I might have at least partially responded to this question above, while also perhaps exposing a certain naivety and idyllic notion of how things work, or at least might work. A culture that supported the underlying values of commons-based peer development would benefit everybody because it would, I think, lead to a sustainable society. This of course assumes that as individual and societies we never really have enough resources to meet everybody's appetites. That is, if left to market forces we will always have unlimited wants and needs and limited resources. On a societal scale wealth and resources are concentrated creating inequity, which is not a humane or sustainable way to manage a society or planet. Everybody feels the consequences eventually. This obviously is not only about social change, it is also about effective teaching and learning and basic access to quality and locally relevant educational resources, but if we can move mountains in the process, why not?

Kim: *When? (only after people have physical access to computers and the Internet?).*

Great question, no, I do not think that this starts only after everybody has access to computers and the Internet. I will follow your and Wayne's lead on this. Commons-based peer development, OER, FLOSS, CIT, education, crime, economic development, etc. are all part of an ecosystem that that will develop together, systemically, and holistically. Investment in developing paper-based OER using commons-based peer development will create demand for CIT, and CIT will become more impactful when they are made available if a process and culture of commons-based peer development is already in place. This will be particularly true if commons-based peer development is already being taught as part of the curriculum and being modeled in educational environments including schools

Kim: *Why do we think this is important? (will it lead to a sustainable planet and world peace?).*

Oops, I responded to this above.

7. Kim Tucker - May 23rd, 2007 at 3:29 am

A link of interest to this discussion (apologies if this is duplication):

http://oedb.org/library/features/how-the-open-source-movement-has-changed-education-10-success-stories[76]

7.3 Summary[77]

7.3.1 Summary

"FLOSS, OER, Equality and Digital Inclusion," the fifth installment of the Impact of Open Source Software Series, was posted on May 2, 2007, by Kim Tucker, a researcher at the Meraka Institute[78] . Thanks Kim!

Kim took an active approach to posting, reviewing, and contextualizing the topics of libre software and commons-based peer production[79] (CBPP) in education. The topic was framed largely enough to include educational resources in addition to software. He then posed a number of questions, and provided brief responses intended to lead to further discussion and an iterative cycle of question development.

Kim tied technology and education together with the notion of CBPP, pointing to connectedness, social networking, and knowledge sharing as critical features of both sustainable technology development and education. Although CBPP has worked well in the development of Free and Libre Open Source Software (FLOSS) and to develop content in communities like Wikipedia, the agile development processes used in much FLOSS production tends not to generate artifacts that are easily localized, which is a critical characteristic for reusability in educational materials. CBPP has been most evident in the developed world, and reusability through localization of educational content is particularly important in the developing world. To further develop the dialog, Kim posed the following questions:

Is the learning from and between FLOSS, OER, and other peer-production case studies applicable in "developing" economies?

- Developing economies frequently do not support the necessary infrastructure for peer development.
- Wealth capacity is not equally distributed in either developed or developing countries. There are parts of developed economies that have the characteristics of developing economies, and visa versa.
- Developing countries are generally not entrenched in set ways of using ICT in education, providing an opportunity to instill patterns that support CBPP.

What are the priorities for education, and how could FLOSS have an impact?

- In many schools, the priorities are for buildings, water supply, electricity, learner nutrition, health, and other physical assets. ICT and knowledge resources that enable sustainable development of capacity to provide for needed assets are critical.
- Educators need both software for teaching and learning and administrative support.
- There is a global shortage of teachers.
- FLOSS and open educational resources (OER) can go a long way in addressing some of these priorities.

What are the motivators and barriers to FLOSS adoption?

- **Motivators:** Kim indicated that in South Africa the government created motivators by reallocating priorities and resources from investment in licensing fees to commercial software for use with FLOSS.
- **Barriers:** Kim referred to some of the barriers highlighted in Pat Masson's earlier post, but also identified factors such as (a) basic literacy, (b) computer literacy, (c) use of office software, (d) co-creation and localization of educational resources, (e) resource sharing, and (f) shared decision making, as building blocks to overcome barriers.

If we were to overcome those barriers and provide physical access to the world's knowledge resources (via FLOSS), would we achieve "equality?"

[76] http://oedb.org/library/features/how-the-open-source-movement-has-changed-education-10-success-stories
[77] This content is available online at <http://cnx.org/content/m14724/1.3/>.
[78] http://www.meraka.org.za/
[79] http://en.wikipedia.org/wiki/Commons-based_peer_production

- Equity extends beyond access.

Kim finished his posting with some observations about:

- How the OER community seems to have readily adopted FLOSS tools;
- The need to address bandwidth, connectivity, and computer access issues in Africa;
- The importance of sharing ideas around FLOSS and OER projects;
- Projects addressing other issues relating to language and general FLOSS capacity.

The golden thread running through all the initiatives cited here is the emphasis on FLOSS and sharing the learning–libre knowledge.

Kim also listed excellent resources with links that provide a context for his posting.

7.3.2 Comments

This posting could have led in a number of directions. Kim seeded a direction when he indicated that it would be productive to discuss some of the motivators for development and use of FLOSS based on just doing "the right thing." I believe that we did pursue his suggestion, but obviously not fully.

The two principal directions that I saw the comments in this posting take were around how to make OER and FLOSS an important feature in African development, and how might commons-based peer production be used to impact education and society?

How do we make the future happen for Africa using free content? There are significant access issues. How can OER communities be engaged in such a way that they develop content so they are coherent with the development of positive use patterns in Africa? Kim pointed to two perspectives on how to approach this issue:

1. ALL investment should go into enabling access. Only then do we even think about content, and enable this via the local communities. Actually, it is not about content—it is about learning activities, which will be greatly enhanced when it is possible to engage with the global knowledge society.
2. Focus on developing (libre) learning resources among those who have access. These automatically become a foundation as soon as new communities gain access. Moreover, in this process, local skills will be developed to take it forward.

Is there the need to develop curriculum around commons-based peer development? Kim responded positively to this question, but drilled down into another related question that pointed directly to the larger potential of impact CBPP.

Would it help to generate a culture that supports and actively promotes peer development, investment in technologies that support collaborative creation, law that favors (reduces barriers and creates incentives) community production, etc? Kim responded with the following questions:

- Would it help what? (Reduce inequalities of access to knowledge/learning?)
- Whom would it help in what way? (Those that are ahead already may simply move further ahead together at a faster rate.)
- When? (Only after people have physical access to computers and the Internet?)
- Why do we think this is important? (Will it lead to a sustainable planet and world peace?)

Chapter 8

Learning Design and Open Source Teaching (James Dalziel)

8.1 Introduction - James Dalziel[1]

8.1.1 James Danziel - Introduction

Figure 8.1

James Dalziel is Professor of Learning Technology and Director of the Macquarie E-Learning Centre Of Excellence[2] (MELCOE) at Macquarie University in Sydney, Australia.

Prior to his current roles, James helped lead the COLIS[3] (Collaborative Online Learning and Information Services) project, was a Director of WebMCQ Pty Ltd, an e-learning and assessment company, and was a Lecturer in Psychology at the University of Sydney.

James leads a number of projects including:

[1] This content is available online at <http://cnx.org/content/m14732/1.5/>.
[2] http://www.melcoe.mq.edu.au/
[3] http://www.colis.mq.edu.au/

- LAMS[4] (Learning Activity Management System) - a tool for designing, managing and delivering online collaborative learning activities
- MAMS[5] (Meta Access Management System) - a national identity and access infrastructure project for the Australian higher education sector
- RAMP[6] (Research Activityflow and Middleware Priorities) - a project investigating open standards authorization and e-Research workflows
- ASK-OSS[7] (the Australian Service for Knowledge of Open Source Software) - a national advisory service on open source issues for the Australia higher education and research sector

8.2 Learning Design and Open Source Teaching[8]

NOTE: Author - James Dalziel, "Learning Design and Open Source Teaching". Originally submitted May 16th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

8.2.1 Learning Design: The missing component of e-learning

The field of Learning Design[9] seeks to describe the "process" of education - the sequences of activities facilitated by an educator that are often at the heart of small group teaching. Consider this example:

> *An educator decides to break their seminar/tutorial class into small groups to debate an idea. Then each group reports back to the whole class. Then the whole class debates the different group ideas. Then the educator presents an article from the literature with a new perspective. Finally, the whole class discusses how their initial debate compares to the ideas of the article.*

This example is typical of small group teaching around the world, and yet this dimension of education is notably missing from most of the e-learning technology field to date.

Learning Design seeks to describe educational processes like the example above. In particular, it has a special focus on processes that involve group tasks, not merely individual students interacting with content on a screen - rather, students interact with each other over a series of structured tasks.

Much of the work on Learning Design focuses on technology to automatically "run" the sequence of student activities (facilitated by the educator via computers), but an activity in a Learning Design could be conducted without technology. Hence, a particular Learning Design may be a mixture of online and face-to-face tasks ("blended learning") or it could be conducted entirely face-to-face with no computers (in this case, the particular Learning Design acts as a standardised written description of the educational process - like a K-12 lesson plan). One way to think of a Learning Design system is as a workflow engine for collaborative activities. A particular Learning Design is like an educational recipe for a teacher - it describes ingredients (content) and instructions (process).

Educators can share Learning Designs in the same way they can share content; but with the added benefit is that they are now sharing the teaching process, not just teaching content. The two main Learning Design initiatives globally (Coppercore[10] and related projects; and LAMS) are both are freely available as open source software, and both have online communities sharing Learning Designs as open content (Learning Networks for Learning Design at OUNL[11] - and the LAMS Community[12] .

[4] http://www.lamsfoundation.org/
[5] http://www.melcoe.mq.edu.au/projects/MAMS/
[6] http://www.melcoe.mq.edu.au/projects/RAMP/index.htm
[7] http://ask-oss.mq.edu.au/
[8] This content is available online at <http://cnx.org/content/m14733/1.5/>.
[9] http://en.wikipedia.org/wiki/IMS_Learning_Design
[10] http://coppercore.sourceforge.net/
[11] http://imsld.learningnetworks.org/
[12] http://www.lamscommunity.org/

The vision of how Learning Design could contribute to improving education was, for me, best articulated by Diana Laurillard[13] in the UK Government e-learning strategy in 2005. Point 89 says:

> *"We want to stimulate greater innovation in e-learning design to accelerate the development of the next generation of e-learning. The focus should be on design flexibility for teachers and engaging activity for learners. Flexible learning design packages would enable teachers in all sectors to build their own individual and collaborative learning activities around digital resources. This would help them engage in designing and discussing new kinds of pedagogy, which is essential if we are to succeed in innovating and transforming teaching and learning."*

The benefit of Learning Design is that it provides educators with a way to describe and share the educational process (not just content). By fostering sharing, we not only improve education through open dissemination, but as educators can adapt and improve the Learning Designs they receive, and share the improved version back with a global audience of educators. This could lead to improved educational outcomes while at the same time reducing preparation time.

8.2.2 Open Source Teaching?

If Learning Designs capture the heart of the education process, then could we, by analogy, call them the "source code" of teaching? And if teachers then share their Learning Designs with each other under open content licenses, then does this represent the birth of open source teaching?

I put forward this idea in a keynote presentation for ED-MEDIA in 2006[14] .

The emphasis, for me, is on Learning Design as the "Source (code of) Teaching", and then applying an open content license makes it Open (Source (code of) Teaching) - rather than the emphasis being "Open Source" for/of Teaching. As ugly as this close textual analysis is, it turns out to be important.

I am happy to call the Creative Commons[15] BY-SA-NC (Attribution, Share Alike, Non-commercial) license (the typical license used in the LAMS Community) an "open" license. But when I ran the terms "open" "source" and "teaching" together, some colleagues took exception to this phrase being applied to Learning Designs that are licensed in a way that is incompatible with the Open Source Definition and the Free Software Definition (ie, no restriction on fields of endeavour, including commercial endeavours).

On the other hand, I've spoken to many educators who are comfortable with open sharing of their educational work for non-commercial purposes, but would be uncomfortable with a blanket license that permits any kind of commercial use as well (in passing, I should note that the issue here is rarely that users of the non-commercial clause are against any kind of commercial use; rather, they would like to be asked first, and have the option to negotiate terms on a case-by-case basis, typically with the implication that if someone else makes money from their work, they'd like a cut).

So I remain uncertain how to address this challenge: if most of my colleagues only feel comfortable to share their work on a non-commercial basis, then is it better to encourage them to share their work (and hence ultimately improve education) rather than trying to persuade them to change their mind about allowing commercial use (and run the risk of them not sharing if they are not persuaded)?

I still really like the phrase "open source teaching", primarily because of the image of Learning Design as the "source code" of teaching. But I've held off using this term any further because I don't feel that the issues above have been resolved. Regardless of the term, I see great potential in the open sharing of Learning Designs to foster improved education for a better world.

8.2.2.1 Comments

16 Responses to "Learning Design and Open Source Teaching"

[13] http://ioewebserver.ioe.ac.uk/ioe/cms/get.asp?cid=12330&12330_0=12562

[14] http://www.lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/message-view?message_id=250900

[15] http://creativecommons.org/

8.2.2.1.1 1. Simon_Shurville - May16th, 2007 at 10:39 am

I love the concept you describe here and the practicality of your approach. I think that the creative commons license has been incredibly useful for ethical reuse of learning objects such as diagrams one can find on Wikipedia (for example), download, embed in and power point and attribute. Such processes really do streamline academic processes and provide cost effective ways in which academics can be 'digital rights' role models for their students and still have time to learn and reflect. And maybe creative commons for learning design will encourage academics to invest the additional work associated with describing learning designs in formal languages and then uploading or publishing them to the world at large. I do sincerely hope so.

My issue is that I have as much instinctive trouble with the idea of attaching ownership to learning designs as I have with copyrighting DNA. I am a realist and appreciate that it takes an individual or organization considerable effort or inspiration to generate and codify a novel and interesting* learning design and that in the real world of activity based costing such effort should be rewarded or acknowledged. And this is part of my worry: how do we verify that a particular learning design was generated by a particular individual? It seems possible that, if incentives exist (be they academic esteem or financial reward), then there could be an epic land grab in which particular ways of teaching are suddenly owned by a person, university or corporate entity. In this admittedly paranoid future it is possible that particular ways of learning and teaching could only be applied in pre-approved contexts or by those with ready cash to hand. To be contentious, are there potential parallels here with drug research costs and the needs of the developing world?

If that land grab happened, then I for one would lose sleep. To avoid potential bags under my eyes, I feel that some form of peer review system is needed to help the community to assign authorship in the first place and that some thinking needs to be done on whether academic processes should be licensed at all and if so by whom.

In the here and now I like the concept of open source teaching a lot, it is an advance and my intuition is that it will be a force for good.

Simon Shurville (simonshurville@btinternet.com)

(* this is based on Margaret Boden's hallmark of creativity)

8.2.2.1.2 2. James Dalziel - May 16th, 2007 at 7:05 pm

Hi Simon, Thanks for this feedback. At one level, the move towards open licensing of education resources (eg, Creative Commons) for any educational resources (eg, Learning Design, image, article, etc) is a step forward from our current restrictive copyright regimes. Under most copyright law, you have little or no right to use and modify a (complete) work without prior permission from the author - which introduces huge "transaction costs" (ie, the effort required to get this permission) into the practical sharing and improving of educational content.

By comparison, Creative Commons licenses can give users certain rights "up front" to use (and depending on the license, modify) educational content without needing to first ask for permission - and this "up front" permission can foster a far more efficient system for using, adapting and improving educational resources.

In the case of copyright in a Learning Design - my understanding (NB: I am not a lawyer) is that your copyright applies only to your specific instance of the relevant content you entered into your design, not any generic design that uses the same activity structure as your design.

So if I write a sequence for introduction psychology students that helps them reflect on their ideas and misconception of psychology (see http://www.lamscommunity.org/lamscentral/sequence?seq%5fid=10489[16]) then the combined "work" of the activity structure and the specific text used in each tool within this sequence is copyright to me, but not the activity structure on its own

(in any case, while this particular sequence is copyright to me, it is then licensed using Creative Commons BY-SA-NC, so you're welcome to use it and modify it for non-commercial purposes without asking me first. If you change it and share it with others, it becomes your copyright, but the "share alike" clause of the license requires you to share it using the same Creative Commons license. If you don't accept this "share alike" requirement, then you lose your original right to modify it in the first place).

[16] http://www.lamscommunity.org/lamscentral/sequence?seq%5Fid=10489

The generic activity structures that can be created in a tool like LAMS are so general that I don't believe copyright should be able to exist in these on their own (that is, without any specific content within them). If it ever turned out to be possible that the generic structures alone could be meaningfully copyrighted, I'd make the case that all possible combinations of generic activities are anticipated by the way the LAMS software operates, and hence any possible copyright in them vests in the LAMS Foundation (which owns the LAMS software and makes it freely available as open source software). The LAMS Foundation would assign copyright in all possible generic structures to the public domain (or failing this, the most permissive open content license available, say CC BY).

So my sense is that the land grab for copyright of generic activity structures can't happen, or if it were possible under certain copyright regimes, then there are ways to fight it to keep everything open anyway.

For completeness, a different approach would be to *patent* certain generic activity structures. Patents allow you to restrict not just the particular manifestation of an idea, but any particular example that embodies the patented idea - so if someone succeeded in patenting a "problem based learning" activity structure, then this could potentially be used to restrict any particular content example that relies on this structure.

Again, I am not a lawyer, but I also see this as unlikely to succeed. First, in many countries, patents over software and business methods are not acceptable. In other countries, the highest court of the land is yet to rule to actually say that software patents are definitely legitimate (this includes the US!). In any case, generic activity structures in education (eg, problem based learning) tend to have long histories that predate recent software implementation, so they would not be considered "novel" (a requirement for a valid patent). A related issue is that even if a particular software implementation of an activity structure was somewhat "new", it may be "obvious" to any skilled practitioner in the field. Patents that are obvious are also not valid, and the US Supreme court has recently ruled that obvious should be interpreted broadly rather than narrowly.

Apart from all of the above, Coppercore and LAMS were the first software systems to implement Learning Design concepts, and so any subsequent work after these systems would be affected by this "prior art" - again, if a concept already exists or is anticipated in an existing system, then it makes later patents invalid. So I think there are strong arguments against any attempt at patenting generic activity structures because of a lack of novelty, their "obviousness", and the existing prior art.

Having said all this, it is worth noting that the systems for granting and litigating patents have become deeply flawed in certain countries (especially the US), so that despite all of the above, inappropriate patents can and are sometimes used against the public good, even in education. So there is no guarantee that a patent fight could not erupt - only that there are good grounds to believe that such an attempt to take something beneficial away from the common good, and to then give a monopoly right to a commercial endeavour based on restricted use of a previously common good, would fail. But let us hope that none of us ever have to tread this path - it would be a colossal waste of time for those seeking to build a better world through better education.

James

8.2.2.1.3 3. Simon_Shurville - May 17th, 2007 at 2:23 am

Dear James

Thank you for a detailed and reassuring reply. I am in complete agreement with everything you write here. I was particularly impressed by the idea that "all possible combinations of generic activities are anticipated by the way the LAMS software operates, and hence any possible copyright in them vests in the LAMS Foundation (which owns the LAMS software and makes it freely available as open source software)" and by the noble sentiment that "The LAMS Foundation would assign copyright in all possible generic structures to the public domain (or failing this, the most permissive open content license available, say CC BY)." It is lucky for us all that LAMS emerged from the community of "those seeking to build a better world through better education".

A great blog so far and I look forward to further installments, Simon

8.2.2.1.4 4. Ken Udas – May 17th, 2007 at 9:34 am

James & Simon, this is great. I am really enjoying the direction that this discussion is taking. As I was reading through the comments I was thinking a bit about the practical limitations and flaws of the US intellectual property regime. I too am not a lawyer or a self-taught expert on IP law, but it does seem that the notion of ownership and commercialization of intellectual assets that were created with the intent to be used openly for the public good is quite contentious. That is, the dialog can become pretty polarized pretty quickly, which in my estimation is good. How the debate, particularly around the Non-Commercial restriction is framed is important because respectful but critical dialog will be the quickest way of addressing the practical problem that James identified in his post.

> *So I remain uncertain how to address this challenge: if most of my colleagues only feel comfortable to share their work on a non-commercial basis, then is it better to encourage them to share their work (and hence ultimately improve education) rather than trying to persuade them to change their mind about allowing commercial use (and run the risk of them not sharing if they are not persuaded)?*

James, although you are not a lawyer, you are a psychologist and I would like your thoughts on this phenomena. Let's just assume that most of our colleagues who contribute to "Open Source Teaching" by contributing learning designs or content to the commons are doing so for the "public good." Let's also assume that our colleagues would like the impact that their contribution has on "Open Source Teaching" (and the common good) to be the greatest possible. Furthermore let's assume that the more frequently used the contributions are the greater the impact and public good. Why would it matter if the impact is magnified by commercial use? It seems to me that if somebody adds some value to the creation and then uses a market mechanism to propagate the benefit, while also respecting the Share Alike component of the license, the impact of "Open Source Teaching" will be greatest and our colleagues' interests are met.

This is sort of a long-winded way of indicating that my observations point to less of a problem with commercial organizations making money on Open Source Teaching resources, than having those resources not being used very much and their value being under realized. The NC restriction might not be at the root of this, in fact, I would guess that right now there are other issues around the culture of western education and technology standards, that are equally important issues, but I think that the NC restriction is a potential barrier in that it makes the license more complex and potentially confusing. It seems to me that "Commercial" use is a term that has some ambiguity and might not get to the nub of what folks are concerned about and why they decided to contribute to the public good in the first place.

8.2.2.1.5 5. James Dalziel - May17th, 2007 at 7:59 pm

Hi Ken,

Many thanks for these thoughts. I think the issues of adoption of Learning Design (your last point) and licensing for open content are mostly separate at the moment, so I'll take each in turn in separate posts. Listed below are some reflections on the reasons for the slow adoption of Learning Design to date:

(1) A typical Course Management System (CMS) is mostly used to support existing practice, rather than transform the pedagogy of a course. Typical real world CMS use (ie, announcements, email, calendar, course documents and slides) seems to me to be "e-admin" for learning, rather than actual "e-learning". These "e-admin" components are helpful contributions towards an efficient course, but they are quite different to the introduction of online scenarios for problem-based learning or role plays (as examples of more transformational pedagogical approaches). So while Learning Design systems may be strong in their support for transformational pedagogies, the reality is that current CMS use is mostly not in this direction to date. When innovative work is done in a CMS, it is mostly "single-learner" content (eg, rich multimedia courseware), rather than collaborative sequences of activities.

(2) Following on from (1), a problem that I now see regularly is that instructors who have used a current CMS have narrowed their view of what might be possible for online learning to just the feature set of their current CMS. This is pragmatic and understandable, but I've noticed that some of the people I would most

expect to grasp the benefits of Learning Design are actually most resistant, either because they now think of e-learning only through the lens of their current CMS, or they don't want to consider a different approach. What's interesting about this problem is that I find it more prevalent in universities (where CMS use is widespread) than in K-12 (where CMSs are now being adopted more, but not as widely or as quickly as in universities). I've seen a number of cases where K-12 teachers have used LAMS, and then later been introduced to a typical CMS for the first time, and been dumbfounded at the "lack of features" in the CMS to support sequences of collaborative learning. I don't see the problem as one of a natural evolution from "basic" use of a CMS to "advanced" use of a Learning Design approach; rather, it seems that the initial tools you use for e-learning affect the way you perceive future tools with different assumptions.

(3) Following from (2), Learning Design systems (such as LAMS) have not tried to add all the traditional CMS features to their core "workflow" features, and so if an instructor wants all the helpful "e-admin" features (and this includes me when I teach!), they aren't available in a Learning Design system. This means that two systems will be needed (CMS + Learning Design) and in many cases, technical restrictions make this difficult or impossible. (As an aside, it is amazing to me how many of the real decisions about e-learning technology use in educational organisations are made by technical staff, rather than instructors; and when there is a disagreement between these groups, the instructors rarely get what they want). However I should note that since we released integrations of LAMS with Moodle, Sakai, .LRN, Blackboard and WebCT, we have seen increased interest in using LAMS within these CMSs.

(4) From a different perspective, I think early Learning Design systems have had some important limitations that made them seem too rigid for some instructors. For example, ever since we started building LAMS, colleagues have been asking for a feature that would allow them to change a "running" sequence "mid-stream". The idea is that as an instructor, even when you plan a set of activities ahead of time, you often find yourself changing these halfway through due to new realisations you've had along the way ("oh - that next activity is not going to work, I should do something different") or simply that the discussion among students within the sequence has taken a different direction to what you expected, and so you want to change the later activities to better reflect the unexpected direction of the discussion. As a teacher myself, I've always wanted this feature too, as it is pretty fundamental to the way education works in practice.

Unfortunately, Learning Design systems turn out to be very complex software applications (they are basically concurrent multi-actor workflow systems, which is bleeding-edge technology even for the most advanced workflow systems), and so the software requirements for editing a running sequence "on the fly" proved to be really hard. However, I'm pleased to say that after rebuilding LAMS from the ground up for the V2 release in December 2006, we were able to put a new architecture in place that would support "Live Edit" (as it is now called). This feature comes out in the LAMS 2.0.3 release due in the next few weeks, and if you want to see it in action now, it is available in the new "RAMS" beta release (RAMS is the eResearch workflow version of LAMS - see http://demo.ramscommunity.org[17]). For an animated walkthrough of this new feature, see http://saturn.melcoe.mq.edu.au/lams2/docs/winks/live-edit.html[18]

Two other technically difficult but pedagogically important features to come soon in LAMS are "branching" and "floating activities". Branching allows an instructor to have multiple pathways for different groups of students (and these pathways can be based on instructor or student choice, or automated - such as using a quiz score to determine which path a student follows). Floating activities are activities that are not "inside" the flow of the sequence - they're individual activities that sit "along side" the main flow of tasks, and can be accessed by students at any time while in the sequence (this is useful for support information/tasks which not all student may need to do as part of the main flow, but are there as a backup for this who need them). Both of these features are due for release in LAMS V2.1 in July. My point here is that until very recently, some important pedagogical features were missing from a Learning Design system like LAMS, so for some instructors, these missing features may have had a big impact on their readiness to consider a Learning Design approach.

(5) One of the core theoretical concepts of Learning Design is that systems should attempt to be "pedagogically neutral" - that is, they should not support just one pedagogical approach (eg, problem based

[17] http://demo.ramscommunity.org/

[18] http://saturn.melcoe.mq.edu.au/lams2/docs/winks/live-edit.html

learning), but rather support a wide range of pedagogies depending on how an instructor designs their activities (NB: my own view on this is that it is impossible to be completely pedagogically neutral, as any system will have hidden commitments of one kind or another - rather, I see this as a crucial goal to aspire towards - the wider the range of possible approaches that are supported equally, the closer we are to achieving this goal).

I think this is an important principle, but in practice, I think most instructors want more than this - they want a flexible system together with advice and templates on "good practice" Learning Designs. So if I want to run a problem-based learning scenario with my class, I'd like a number of pre-built activity templates for problem based learning, and some advice on which one to choose, and how to edit the content to suit my discipline area. To me, this would be a very useful overlay to a Learning Design system, but it is worth noting that it goes beyond the concept of pedagogically neutrality. I think the field of Learning Design is now ready to take this step of having two layers - a generic design layer, and on top of this, a set of templates and advice for particular uses - but not all would share my views on this. In our own work on LAMS, we are working towards a first example of this kind of system (sometimes called a "pedagogic planner") in the coming months, and there are two projects in the UK working on related concepts in this area. For an early mock-up of how this could look, see slides 18-22 at

http://www.lamsfoundation.org/CD/html/resources/presentations/LAMS.JISCeval.AstonUniConference.Jan05.ppt[19]

The above is by no means an exhaustive list of barriers to the adoption of Learning Design, and they may not even be the most important. In particular, the slowest adoption of Learning Design, relative to general market size and innovation, is in the US, and this remains a mystery to me. I'd welcome comments on these or other suggested barriers from readers of these posts.

8.2.2.1.6 6. James Dalziel - May 17th, 2007 at 10:03 pm

Ken asks why it would matter if others were making money from open content Learning Designs, so long as the wider educational benefits of their adoption was the outcome?

I won't try to answer this for myself, as I am yet to resolve my own conflicting ideas on this, but let me try to comment generally on behalf of the educators with whom I've discussed this topic - I think there are two points:

(a) The spirit of sharing resources for non-commercial use runs strong in the education community - the idea certainly predates its codification in Creative Commons licenses, and I believe it is decades if not centuries old. But saying this does not mean commercial use is somehow the polar opposite, rather that commercial use tends to foster a much more mixed reaction among educators, and a tendency to debate pros and cons (sometimes vociferously). My sense is that the idea of non-commercial sharing *in and of itself* is widely accepted. So I think the choice of NC licenses should not be assumed to be an "anti-commercial" decision - rather, for many educators it is a statement of what is unproblematic as an up-front grant of rights (as compared to a different set of up-front rights that tends to provoke more mixed reactions).

This spirit of sharing among educators may change over time as the arguments for a combined non-commercial and commercial grant of up-front rights are made (as it has been made successfully for free/open source software - although it's worth noting that Linus Torvalds' initial Linux license had a condition against distributing it for money, and he only later changed to the GPL). For now, I think the deep bedrock of instinctive educator behaviour is to be comfortable with non-commercial sharing, but uncertain what to make of commercial use. And I would add that even if there are some fuzzy boundaries to the limits of non-commercial use, in my experience this does not tend to change the broader spirit of how educators feel about this issue.

(b) I think the concerns about commercial interests making money from an educator's Learning Design (or any other educational resource) is more about a fear that money is being extracted from users for what would otherwise would be a no-cost resource, and then those revenues could be going to things *other* than the further creation and dissemination of Learning Designs to benefit education (eg, offsetting losses on past failed commercial e-learning initiatives).

[19] http://www.lamsfoundation.org/CD/html/resources/presentations/LAMS.JISCeval.AstonUniConference.Jan05.ppt

My sense is that where there is a virtuous circle between commercial dissemination of educational resources that leads to further funding for creation and dissemination of new resources, then many educators would be (more) comfortable with this situation. But if this is not the case (or even if it is just perceived to be not the case - there is much trust to be rebuilt between educators and commercial interests), I think there is a natural reluctance among educators to trust commercial parties *up-front* to use their content to make money in unknown ways.

Having said the above, I think there is quite a lot of unrealistic thinking about the potential monetary benefits to educators of having their work used commercially. In practice, most publishers I have dealt with tend to only work with quite large "units" of educational content, such as a whole textbook (as the cost of acquisition for smaller units, like individual learning objects, makes them uneconomical). So I don't see a viable market for individual Learning Designs, at least not for a long time.

However, if you are an expert author of Learning Designs with many existing shared items that are highly regarded, then I think the chances of you being approached by a commercial publisher to create a set of *new* resources for a fee is a more likely commercial opportunity for the short-medium term. In other words, for educators who might like to benefit commercially from the work they share, what matters more is the reputation they achieve from past sharing of good quality work as a basis for new paid work in the future; rather than the idea that an educator would see any significant commercial income straight off the back of existing sharing.

I may be wrong on this, as we really don't have much practice of any kind to observe yet, but this is my sense of how the relationships between Learning Design authors and commercial interests are likely to pan out in the next few years. I'd welcome feedback and alternative views on this.

I should note that I've made many claims above on behalf of "(most) educators" - and although this is based on the many conversations I've had on this topic over several years all around the world, I could well be wrong on some or all of the "spirit" that I attempt to articulate above. Even if my characterisations are somewhat accurate, there will be many educators who don't share these views, so I accept that I am not speaking for them, and I don't mean to offend anyone who has different views to those I'm attempting to describe.

8.2.2.1.7 7. Ken Udas - May 22nd, 2007 at 8:10 pm

Comment

James, you posed an interesting question in your earlier post about learning design

> *In particular, the slowest adoption of Learning Design, relative to general market size and innovation, is in the US, and this remains a mystery to me. I'd welcome comments on these or other suggested barriers from readers of these posts.*

I have recently served at two universities that have a strong commitment to learning design. At the State University of New York (SUNY) within the SUNY Learning Network[20] (SLN) much of our dialog was about learning design and how it is supported through technology infrastructure. At the Penn State World Campus, we maintain a relatively large learning design group that supports the program and touches all of our courses. In both cases the design groups had developed some technology support for learning design. In addition, a quick review of the Sloan ALN and WCET meetings to be held this autumn in the States indicates that learning or instructional design are well discussed topics. My point is that the notion of learning design, I think, is relatively well accepted in the States.

So, is this more about the adoption of learning design tools by particular classes of users than the acceptance of design principles of teaching and learning? Could it have more to do with the identity that many educators have with a particular LMS/CMS? Do educators have an intuitive sense for learning design principles and go about their business naturally applying them without design tools?

I know of an increasing number of colleagues who are exclusively using a wiki application as their teaching and learning environment. These tend to number among the most sophisticated and creative teachers that

[20] http://sln.suny.edu/index.html

I know. Does this represent an interest in reducing technological barriers, or at least point to a certain minimalism? If so, what do you think it means for Learning Design? Most of us who have been at this for a while cut our teeth on eLearning using a LISTSERV (frequently Majordomo) and did some pretty creative things, I think, because the rules of teaching online had not yet been settled.

I am thinking that there will be certain types of educators that will use a design tool and certain types of institutions that will adopt a design tool. I would guess that there are more individuals and small deployments using LAMS or some other tools that support learning design than one might suspect, and that is takes a lot for large programmes with established workflows, developing training programs, and other investments to adopt a new tool or approach.

Am I missing the mark?

8.2.2.1.8 8. James Dalziel- May 22nd, 2007 at 11:49 pm

Ken, Thanks for your thoughts on the adoption of Learning Design in the US. I think a terminology issue needs clarifying first. For me, the phrase "Learning Design" (especially with the capitals) tends to refer to a specific body of quite recent technical work that attempts to describe how software can "run" a sequence (or flow) of learning activities (particularly collaborative activities); and this ability to run the activities is based on a run-time system executing a machine-readable "design" document (which can be created independent of the run-time environment; and hence is shareable).

The core elements of a Learning Design are a series of activities that include details (for each activity) about who is involved and their roles, what is to be done, and how it is done; together with some overarching description of the "flow" of these activities, and potentially the reason for this Learning Design (eg, objectives). This description could be applied to a well structured (human written) lesson plan, so Learning Design's unique contribution is to provide a machine-readable "formal language" that allows the lesson plan to be "run" in software.

The early work on Learning Design was around Educational Modelling Language (EML) at the Open University of the Netherlands in the late 1990s. This work was then an input to the development of the IMS Learning Design specification, which is the main reference point for most people within this field. IMS LD was developed in 2001 and 2002, and released in February 2003. Over the past five or so years, we've seen the first generation of Learning Design systems that are either directly based on this work (eg, Coppercore and Reload) or draw inspiration from it (eg, LAMS).

I mention all this because there is a wider set of activities within educational organisations sometimes called learning design, instructional design, or other terms - and this often predates the specific work mentioned above. Sometimes there is quite a bit of overlap between these approaches (such as the SUNY learning design work, which has quite a bit in common with the ideas behind IMS LD), sometimes less so.

Much of the focus on instructional design in the US relates only to "single-learner" contexts, whereas Learning Design (as described above) has tended to have a strong (but not exclusive) focus on collaborative learning contexts. While I applaud the sophistication of US single-learner instructional design, I remain dumbfounded at its silence on collaborative learning contexts.

As an aside, the software implications of single vs collaborative learning contexts are quite different too - running single-learner materials is much simpler than collaborative activities, as collaboration requires co-ordination of groups of learners, which normally means a much more complex "backend" software system.

Let me list the projects I know of (and their country of origin) which fall within the scope of my narrow definition of Learning Design. This is a quick, rough list, so apologies to anyone I've missed. Also, I'll only list the main software project, not more general add-ons, research reviews, etc. Not all are directly based on IMS LD, but have (or plan to have) the core characteristics of shareable designs that support sequences of collaborative learning activities:

- Coppercore (Netherlands) http://coppercore.sourceforge.net/[21]
- Reload (UK) http://www.reload.ac.uk/[22]

[21] http://coppercore.sourceforge.net/
[22] http://www.reload.ac.uk/

- LAMS (Australia) http://www.lamsfoundation.org/[23]
- SLED (UK) http://sled.open.ac.uk/web/[24]
- LeMill (Europe, esp. Norway) http://lemill.net/[25]
- LDL (France) http://ld.pentila.com/[26]
- MOT+ (Canada) http://www.licef.teluq.uquebec.ca/gp/eng/productions/mot.htm[27]
- E-LANE (Spain) http://e-lane.org/news/one-entry?entry_id=27594[28]
- AUTC Learning Design project (Australia) http://www.learningdesigns.uow.edu.au/[29]
- SUNY SLN 1 (US) http://sln.suny.edu/index.html[30]
- WISE (US) http://wise.berkeley.edu/[31]
- Collage (Spain) http://gsic.tel.uva.es/collage[32]
- MyCeLS (Israel) http://www.mycels.net/[33]
- (details about some of these can be found at http://www.imsglobal.org/ldsummit2006.html[34]).

Some projects that claim to provide IMS LD systems, but which I haven't seen, include:

- iClass/ASK-LDT (Europe) http://www.iclass.info/iclass01.asp[35]
- Prolix (Europe) http://www.prolix-project.eu/[36]
- Cooper (Europe) http://www.cooper-project.org/[37]
- CALIBRATE (Europe) http://calibrate.eun.org/ww/en/pub/calibrate_project/home_page.htm[38]
- E-LD (Spain) http://www.e-ucm.es/drafts/5.pdf[39]

So only 2 Learning Design systems that I know of come from the US (WISE and parts of SLN 1).

From a different angle, if you run various searches (Google, research articles) for "Learning Design" you will notice how often the articles come from countries other than the US.

Perhaps the problem is that there are systems in the US that would meet the (narrow) criteria for Learning Design, but they are not yet widely known. If so, I'd love to hear more about them. But I've been in this area long enough to know that many people think their software supports Learning Design (defined narrowly) when in reality it doesn't - so here are my rough criteria:

- Must support creation of a shareable Learning Design file that other teachers can use to run the Learning Design on a different server (preferably without needing system administrator experience) (NB: A course backup file doesn't count in my books, but even this would be a step in the right direction) AN
- Must support collaborative activities within the design, not just content and quiz (preferably the collaborative environments are automatically instantiated for you when you run the Learning Design, but some hand creation would be okay)
- I think that captures the essence of Learning Design, although if some examples illustrate that I've missed something, I'll post any additional requirements in follow-up posts.

Are there US systems out there we haven't heard of, or does the mystery continue?

[23] http://www.lamsfoundation.org/
[24] http://sled.open.ac.uk/web/
[25] http://lemill.net/
[26] http://ld.pentila.com/
[27] http://www.licef.teluq.uquebec.ca/gp/eng/productions/mot.htm
[28] http://e-lane.org/news/one-entry?entry_id=27594
[29] http://www.learningdesigns.uow.edu.au/
[30] http://sln.suny.edu/index.html
[31] http://wise.berkeley.edu/
[32] http://gsic.tel.uva.es/collage
[33] http://www.mycels.net/
[34] http://www.imsglobal.org/ldsummit2006.html
[35] http://www.iclass.info/iclass01.asp
[36] http://www.prolix-project.eu/
[37] http://www.cooper-project.org/
[38] http://calibrate.eun.org/ww/en/pub/calibrate_project/home_page.htm
[39] http://www.e-ucm.es/drafts/5.pdf

8.2.2.1.9 9. Ken Udas - May 23rd, 2007 at 4:50 am

James, thanks again for your very thoughtful response. I too would be interested in extending the list of Learning Design software that you provide in the above comment, from the US or elsewhere.

Although much of your treatment of "Open Source Learning" in your original post was about licensing of Learning Designs, meeting the technical characteristics that you identified in your last comment is of significant importance. What about the role of open standards, so Learning Designs can be easily run across run-time environments? Is this also a critical factor in establishing a vibrant community that supports "Open Source Learning?"

I assume too that not only are you wondering about why more Learning Design software projects have not been initiated in the US, but why more US universities or educators have not adopted the practice of deploying Learning Design Software and using Learning Designs.

So, I know that you have spent a lot of time not only working on Learning Design, but taking a real leadership role shaping the dialog globally, have you found US educators less receptive or understanding of Learning Design than educators elsewhere? I don't want to make this into a US thing, but I would imagine that there are characteristics associated with different educational systems that would bias toward certain types of practice and adoption of certain types of software.

8.2.2.1.10 10. James Dalziel - May 23rd, 2007 at 8:08 am

Ken, Let me take your two main questions (standards for learning design, and reasons for slow US adoption) in separate posts. In terms of open standards, the IMS Learning Design specification is the main reference point for this area. There is quite a history to this specification which I won't go into here, but for a brief discussion of issues from a LAMS perspective, see this article

http://lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/attach/go-to-attachment?object_id=211547&attachment_id=211549[40]

Suffice to say that open standards for Learning Design are a very important goal, and the ability to take a Learning Design created on one system and play it (with fidelity) on another is something worth striving for.

Unfortunately, the concept of Learning Design, as well as its implementation in the IMS LD specification, is quite complex, and I believe we are only at the beginning of many years of innovation and development. As a result, any Learning Design specification will need to evolve with new ideas and feedback from practice.

One of the areas that we have worked hard on in LAMS is how individual activity tools plug into a Learning Design system (ie, the core workflow engine of the run-time part of a Learning Design system) in such a way that it creates a well integrated and easy to use Learning Design application. This integration is described in the LAMS "Tools Contract" - for a technical discussion of this, see

http://wiki.lamsfoundation.org/display/lams/Tool+Contract[41]

In essence, each activity tool (eg, Forum, Chat, Quiz, etc) needs to present four interfaces that follow certain behavioural conventions: Author, Monitor, Learner and Admin. These interfaces describe how an activity tool plugs into the main system, including authentication and roles (Admin), what interface it provides for authoring/configuration of itself (Authoring); the actual activity tool accessed by learners at the relevant step within a Learning Design when it is run (Learner); and how a teacher who is overseeing a running activity can view student tasks and intervene if required (Monitor).

So in addition to an ideal Learning Design standard that describes the structure and flow of activities (IMS LD is a first step in this direction), we also see an important role for a description of how activity tools run within a run-time system. These tool descriptions are a mixture of data element (eg, the thread for this forum discussion is "XXX") and behavioural elements (eg, this forum tool should restrict students to posting a maximum of two responses to this forum, of no more than 1000 characters each, and students cannot start new threads). So in an ideal Learning Design standard, we'll need to come up with an agreed set of

[40] http://lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/attach/go-to-attachment?object_id=211547&attachment_id=211549

[41] http://wiki.lamsfoundation.org/display/lams/Tool+Contract

core data and behaviour elements for each type of activity tool, so that when I move my description of how to instantiate a forum from one system to a second system, the second system can recreate a functionally equivalent forum experience (regardless of the fact that it has its own different forum tool).

This kind of "rich" tools interoperability will be very demanding to get right, and will probably take quite awhile. Those working in the standards world will need to agree on core and optional features for each main type of activity tool, so as to provide a reasonable chance at interoperability as Learning Designs move between systems (eg, should a non-LAMS forum tool have the behavioural constraints described above? Would a text message to students telling them to do these things, without enforcing them in software, be sufficient for interoperability?).

As it happens, it was Tools Interoperability that ended my close involvement with the IMS specification development group. I had been closely involved with IMS for several years, and was excited when IMS decided to work on Tools Interoperability, as I felt this was key not just for Learning Design, but Learning Platforms in general. Unfortunately, it was made clear to me at the time that the Learning Design issues I was raising were not considered important at that time, so after failing to have this perspective included, I took time out from IMS, and haven't yet returned.

There is some new work that has recently started on Version 2 of IMS Tools Interoperability, and I've spoken to a number of those working on this about the importance of including a Learning Design perspective, but my sense so far is that Learning Design issues are not high on the list of priorities for those leading this work. It may come as a surprise to those outside the standards world, but despite IMS releasing the Learning Design specification, the concepts of Learning Design are not well understood among most IMS participants, and it was an unpleasant surprise to discover that among the many product areas designated for potential awards at the 2007 IMS Learning Impact Conference (including many that are not the basis of IMS specifications) - Learning Design was not mentioned (see http://www.imsglobal.org/learningimpact/[42]).

Apart from Learning Design issues for Tools Interoperability, I think there are other ideas in the LAMS Tools Contract which are worth considering for any tool, not just a Learning Design-enabled tool. For example, LAMS V2 has a new a new feature called "export portfolio" - this feature allows a student to export a static HTML record of every activity they have been involved in within a running sequence. This allows students to keep their own "offline" record of their learning, which can then be stored in an e-portfolio (hence the name) or other location. We've found this feature to be very popular with students who want to keep an archival copy of their learning independent of their access to a particular Learning Platform. So while this feature is not specific to Learning Design, we see it as a useful new feature to be considered as part of a rich Tools Interoperability specification.

So in summary, open standards for Learning Design are very important, but challenging to get right, at both the "flow" and "tools" level. I hope the LAMS Tools Contract provides some useful new ways of thinking about these ideas for future standards development, although I'm sorry to say that I'm quite concerned about the state of standards development in this area. It is always hard to get the balance right between innovation and consensus in standards development, but in this case, I feel that Learning Design issues in Tools Interoperability have mostly been ignored to date.

8.2.2.1.11 11. Wayne Mackintosh - May 23rd, 2007 at 11:46 am

Hi James -

One or two thoughts about restricting commercial activity associated with free content. There are numerous uncomfortable paradoxes that we educators need to unpack. Admittedly - my views are informed by much of my work, which is focused on expanding access to education as a common good - particularly in the developing world. Consider for example the following rationales:

We believe in the principles of "freedom of speech" (eg sharing knowledge and educational resources) as long as you're not engaged in commercial activity.

[42] http://www.imsglobal.org/learningimpact/

We academics - have no problem prescribing a text-book with all rights reserved, and expecting the students to pay for the text commercially (i.e. accepting commercial activity around knowledge) but when it comes to copyright of an "open resource" under a CC license, folk become uneasy with the commercial activity."

Isn't this double standards?

Those of us working towards the development of a free education curriculum, have no problems with commercial activity associated with free content resources. In fact we encourage this!

As an educator - I don't feel that I have a right to deny someone the right to earn a living. This challenge is emphasised when we start thinking about the achievement of the millennium development goals - especially the eradication of abject poverty. I encourage entrepreneurs all over the world to add value and services to free content - in so doing, widening access and distribution channels to knowledge for the common good of society.

Some things deserve to be in the commons - education is one of them in my view. We need to rethink our business and educational models in a world where mass-collaboration and self-organisation can make a real difference.

I'm not offering these view in opposition to closed content development approaches. We should respect the freedom of individuals to choose.

In my view the adoption of the non-commercial restriction in so-called "open source teaching" is a red herring. It looks more like an excuse not to participate in the real access challenges to education on our planet.

Have enjoyed reading the debates - good stuff, Wayne

8.2.2.1.12 12. Wayne Mackintosh - May 23rd, 2007 at 12:08 pm

Hi friends -

One or two reflections on the technical and pedagogical challenges of Learning Design.

The notion of technology enhanced learning design is in its infancy, and am not convinced that we have succeeded in achieving a scalable and usable model yet.

The separation of content (what to teach) and form (how to teach it) is a neat idea at a theoretical level, yet in my view - the technologies have failed to crack this nut. We may get it right in the future - but we still have a long way to go in my view.

The problem is that a learning resource is an aggregation of content and form. Any technology that deals with learning design must grapple with a very difficult challenge, namely the inverse relationship between pedagogy and reusability. Education is always contextual and the more pedagogy you build into an asynchronous learning resource - the less reusable it becomes in different contexts.

The level of complexity in LD sequences constrains reusability and possibly works against the mass production of free content. How do we overcome these barriers?

Cheers, Wayne

8.2.2.1.13 13. James Dalziel - May 24th, 2007 at 12:07 am

Given that most of the work on Learning Design exists outside the US, Ken asks whether there are any particular barriers to adoption of Learning Design software that I've encountered in the US. I don't have a clear answer to this, but I'll pick on one of the factors that most worries me about US education.

Automated Testing.

I find the extensive use of automated testing in the US amazing, especially in K-12. Some of the most important lessons of education cannot easily be tested in an automated way - for example:

- the ability to hear arguments other than those you already believe and consider these carefully (and potentially change you view);
- the ability to work in teams to think creatively about solving a problem;
- the ability to express your ideas clearly in written or oral form

- the ability to research a new problem to find out what is already known about it so that you can approach the problem with greater knowledge than you can achieve by thinking on your own;
- an understanding of an individual's role in society, and the interconnection of business, the environment, politics and culture;
- an appreciation of beauty, music and art;
- a sense of the lessons of history for modern dilemmas;
- an understanding of the development of science and its strengths (and limits);
- an ability to understand and contrast cultures and religions other than your own;
- an understanding of your own ethics and values, and how these relate to those of others;

...and the list could go on. The point is that many educators would agree that a rich education should achieve learning of the kind described above, not just memory of the facts that can be tested in a multiple choice quiz. And it is important to note that it is possible for a teacher to assess learning of the kind outlined above, but not via a quiz (and also not perfectly - but see comments below on reliability).

The assessment required for the learning described above is often formative, not just summative; a dialogue between student and teacher, not just a judgement; and most importantly, time consuming for a real human being (the teacher), not a process that can be outsourced to a machine. In essence, it is an attempt at authentic assessment.

Some of the pedagogical approaches that are best supported by Learning Design (as compared to other e-learning approaches) may not fit with a culture of automated testing. And given that students will focus their learning on the methods used to assess them (and increasingly teachers simply "teach to the test"), then I sense there are structural barriers to a greater realisation of the benefits of a Learning Design approach that arise from US assessment practices. The frightening dimension of this is that if our students only learn what we can test via automated testing, then they may not become the well-rounded people we hope to see graduate from our educational systems. This may ultimately be detrimental to our society and our world.

I see two arguments in favour of retaining extensive automated testing - one that I consider to be invalid, and one that is somewhat valid.

The invalid argument is the classic "reliability and validity" arguments from educational measurement and test theory. The argument is that automated tests are a fair judge of a student's ability, whereas the kind of assessment needed for the types of learning described above will be subjective and unreliable. For now I won't dispute the second part of this argument, but in terms of fairness arising from reliability of automated assessment, there is a fundamental problem with this argument that is rarely discussed.

Educational measurement, if it is to be valid, needs to meet the requirements of "scientific" or true measurement. Scientific measurement requires that the underlying attribute being measured (in this case a student's ability in a particular area) is quantitative (like length) and not qualitative (like colour). For an attribute to be quantitative, it is not simply a matter of assigning numerals to things, rather, a scientific study to investigate whether or not the underlying attribute has the "structure" required for something to be quantitative needs to be conducted.

For something like length, this is easy to establish, as we can compare and add lengths. For other attributes (such as density, or potentially educational abilities), we can't add objects/people together, but we can potentially order them. The discovery of conjoint measurement provides a method of testing ordered structures to see if they are also quantitative.

So if one applies the rigorous requirements of scientific measurement to educational scores, what do we find? Well, when I last looked into this field deeply*, there was no robust evidence that educational measurement is quantitative. If this is the case, then we can't add scores together in education and achieve at a meaningful outcome (eg, creating an "overall" score is invalid, because the numerals being added together aren't based on a demonstrably quantitative attribute). And if this is the case, then we don't actually have fairness, as the reliability and validity that we appear to have are built on a false foundation.

*For a detailed version of this argument, see Dalziel (1998)[43]

If automated testing produces scores which are not real measurement, but rather spurious numerals; and given that the use of automated testing has such a great impact on the way students learn (and how teachers

[43] http://eric.ed.gov/ERICWebPortal/Home.portal?_nfpb=true&ERICExtSearch_SearchValue_0=%22using+marks%22&searchtype=keyword

teach), then I believe there is an argument for a fundamental change in the way education is conducted in the US (and elsewhere). If automated testing is rejected, and the types of learning described above are valued, then the alternative approach to education could look more like typical Learning Design sequences.

The second, somewhat valid defence of extensive automated testing is that any alternative to this would involve enormous human effort on the part of educators. If educators need to conduct rich assessments with feedback and dialogue for each individual student, then this would take an enormous amount of time; and educators are already incredibly busy, so it is hard to see where this time could come from.

I agree that it would take a lot of time, and that teachers are already very busy, but ultimately I think the current alternative is worse. If student are mostly just memorising for automated tests, and then forgetting almost everything they memorised soon after the test, then the educational process is not achieving much real learning anyway. Given this, I think we could change our educational processes to focus on less content delivery (and hence less fact testing), and spend more time on the types of learning outlined above.

I hasten to add that I'm not advocating content-free education - far from it - it is only through a rich engagement with real content, real events, real discoveries, that the broader types of learning will come alive and be retained by students. But by changing assessment practices, and giving much more time to this element of education, we change the way that students learn (and the way teachers teach), and may have a better chance at achieving these broader types of learning.

While Learning Design could help with more authentic learning and assessment tasks, it could also help with educators' lack of time. Instead of the inefficiencies of each educator around the world re-inventing the wheel for commonly taught topics, the re-use of existing "good practice" Learning Designs could reduce preparation times, and hence free educators to spend more time on authentic and individualised assessment.

I believe this is a dream worth fighting for, and I sense I'm not alone.

8.2.2.1.14 14. Ken Udas - May 24th, 2007 at 5:11 pm

James, thanks again for your thorough response. Am with you on the deficits of automated testing and with you on the potential of not having to reinvent new Learning Designs and content. Following from a number of earlier discussion it seems that building an economy of open educational resources is predicated on ability to easily localize content, which I think points to having a ubiquitous and reliable "run-time" environment.

James, I know that you have been investing a lot of time in this posting, and I very much appreciate it. I have another quick question that I think relates to the development of a strong community supporting the development and use of "Open Source Teaching" resources. How much complexity would having a collaborative authoring environment create? In Kim Tucker's recent posting, we talked a bit about Commons-Based Peer Production (CBPP), which seemed to me to be a rather important notion. Do you have any thoughts about CBPP, that is, have you seen evidence of it practically in the development of Learning Designs, or is it just a good idea, but not very practical. Finally, what would have to be done in LAMS to support group development?

8.2.2.1.15 15. James Dalziel – May 28th, 2007 at 5:06 am

Ken, Regarding Commons-Based Peer Production, I think Learning Design in general, and LAMS in particular, are very much in keeping with this idea. From one perspective, the whole point of Learning Design is to try to capture the educational processes we use in online courses so that these can be made explicit, and then shared, localised and adapted. This is compared to the usual alternative which is that an instructor does some innovative things in their Course Management System in connecting content resources to forums and other tools to foster collaborative student learning, but then at the end of the course there is no easily shared "thing" that represents this structuring of links between content, forums, etc.

So having made the educational process shareable, Learning Design supports different kinds of peer production. It could be a course team within a single institution where different individual s with different skills (content expert, learning designer, graphic artist, etc) work together to create online courses. These may never be shared with the wider world, but by making the elements shareable, collaborative development is made easier. LAMS has always supported this through both export of Learning Design files, as well as

authors being part of "shared" areas with others on the same server. In LAMS V2, we now support multiple shared areas, so different teams of course developers can work together, each with in their own shared "space".

In other cases, the focus may be more "global", in the sense that individual educators share resources with the world in the hope that others will be able to use, adapt and improve these resources, but without this being part of any specific local team effort. I think this more global approach will usually require open content licenses to work (as it is difficult to harness the collective development effort without clear freedoms to use and adapt), whereas this not necessarily a requirement (although still desirable!) for local team production.

The LAMS Community is an example of this second kind of "global" sharing. As at 28th May 2007, we have 2262 users sharing 190 sequences which have been downloaded 5377 times - so this illustrates the Commons-Based Peer Production model applied to Learning Design. It is modest in scale compared to some other initiatives, but nonetheless it provides a first indication of the potential of CBPP applied to Learning Design.

One surprise (for me) from the history of the LAMS Community to date is that we haven't yet seen much direct adaptation and sharing back - most sequences are new contributions, rather than modifications of existing sequences. This may be just part of an evolutionary process (perhaps we need a large body of original work before adaptation becomes common), but when I've talked to educators about this issue, many have noted that they like reviewing other people's sequences for ideas and tips, but that they tend to start a fresh sequence that is *informed* by their review of other sequences, rather than direct adaptation. I've experienced this myself.

If this proves to be a persistent issue, it might limit the potential benefits of using open source style development processes to improve the quality of Learning Design through peer collaboration. This will be worth watching closely over the coming years.

For a more detailed article about the rationale for the development of the LAMS Community, and some reflections on experiences to date, see

http://www.lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/attach/go-to-attachment?object_id=311748&attachment_id=311750[44]

8.2.2.1.16 16. Ken Udas - May 28th, 2007 at 8:53 am

James, Simon, Wayne, and all others who are following along - thank you very much your thoughtful post and follow-up comments. This, and a number of other posts have me thinking about some of the similarities and differences between open source software and open educational resources relative to the creation and distribution of intellectual information products, and the organization and effort it takes to sustain an open community-based endeavor of this nature. I think that the notion of Open Source Teaching provides an interesting perspective. In the near future, I would like to tease some of this out in terms of commons-based peer production.

8.3 Summary[45]

8.3.1 Summary - Learning Design and Open Source Teaching

"Learning Design and Open Source Teaching," the sixth installment of the Impact of Open Source Software Series, was posted on May 16, 2007, by James Dalziel, Director of the Macquarie E-Learning Centre Of Excellence[46] (MELCOE) and prime mover behind LAMS[47] . Thanks James!

James' posting was organized into two related sections. The first provided some definition for Learning Design as treated in his posting, and the second pointed to the potential of "Open Source Teaching." James'

[44] http://www.lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/attach/go-to-attachment?object_id=311748&attachment_id=311750

[45] This content is available online at <http://cnx.org/content/m14734/1.3/>.

[46] http://www.melcoe.mq.edu.au/

[47] http://www.lamsfoundation.org/

treatment of Learning Design suggests that Learning Design seeks to describe learning processes along with content, which takes the form of sequences of activities. Although the activities could be of a mixed online and offline nature, much dialog around Learning Design is focused on the technology to automatically run activity sequences. James then points to the potential benefits of Learning Design in terms of collaborative and social learning and activity sequence sharing, which leads into the second section on Open Source Teaching.

James starts the second section of his posting with,

If Learning Designs capture the heart of the education process, then could we, by analogy, call them the "source code" of teaching? And if teachers then share their Learning Designs with each other under open content licenses, then does this represent the birth of open source teaching?

He then makes a reference to an article that fleshes out the concept, and quickly dives into the important topic of licensing, particularly around the Non-Commercial (NC) restriction, which had been treated in some previous postings in "FLOSS, OER, Equality and Digital Inclusion" and "WikiEducator: Memoirs, myths, misrepresentations and the magic."

8.3.2 Comments

The comments for this posting were extensive and centered on the themes of a) licensing and sharing Learning Designs and b) the nature of Learning Design and the relatively slow uptake of Learning Design in the United States. The comments, questions, and responses in the posting where quite detailed and deserve to be read in their original form. The sub-texts within the comments included:

- Concerns about the appropriation and commercialization of Learning Designs, which was discussed in terms of protections offered through the creative comments licensing agreements.
- Questions about the most effective ways of licensing that will best serve the public good promise of OSS, OER and "Open Source Teaching," which was discussed in terms of the trade-off between the NC restriction and the willingness among academics to contribute open resources.
- Assertions and considerations about the impact that the NC restriction has on the freedom culture.
- Questions about the uptake of Learning Design in the United States, which resulted in the refinement of what James refers to as Learning Design, and some thoughts about why Learning Design might be less enthusiastically embraced in the United States than elsewhere.
- Questions about collaborative authoring of Learning Designs and the potential to realize some of the benefits of Commons-Based Peer Production (CBPP).

Thanks again to James, Simon, Wayne, and all of the other folks who have been reading along. Our next posting will be by Dr. Farideh Mashayekh (Bazargan), who serves as a Strategic Consultant in Educational Planning & Pedagogy with Pedagogy.ir[48]

[48] http://www.pedagogy.ir/

Chapter 9

Lifelong Learning in Knoweldge Society (Farideh Mashayekh)

9.1 Introduction - Farideh Mashayekh[1]

9.1.1 Farideh Mashayekh - Introduction

Figure 9.1

Dr. Farideh Mashayekh serves as a Strategic Consultant in Educational Planning and Pedagogy with Pedagogy.ir. Much of her teaching, research, and other work have focused on systems approaches to planning adult education and lifelong learning and the application of cognitive and constructivist schools of thought in teaching-learning processes. In addition to being a prime mover behind Pedagogy.ir, she is a thought leader in the adult education community in Iran.

9.2 Lifelong Learning in Knowledge Society[2]

NOTE: Author - Dr. Farideh Mashayekh (Bazargan), "Lifelong Learning in Knowledge Society". Originally submitted May 29th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

[1] This content is available online at <http://cnx.org/content/m14752/1.3/>.
[2] This content is available online at <http://cnx.org/content/m14754/1.5/>.

9.2.1 Prelude

- The new millennium requires new vision and understanding of learning.
- Transition from Industrial Society to Information and Knowledge Society has its impacts on social, economic and cultural aspects of life.
- What are the impacts of the transition to Information Age[3] regarding:
  - personal fulfillment
  - citizenship
  - employability
- What are the implications of this transition on learning?
- What is the vision of future learning?
- How can we be prepared for an Information Age and a Knowledge Society[4] ?
- In a technology-enabled, lifelong learning environment, digital literacy (e-skills), scientific literacy, cultural literacy, in addition to key competencies, are the critical perquisites for access, participation, and learning to live together in peace.
- With the advent of "e-learning," some believed that the panacea for learning had been discovered. But without a holistic approach to learning, technology by itself can't bring any change.
- In a world of active lifelong learning, an individual's skills portfolio will be built and documented based on a mix of real-life experiences, achievements, and formal learning certifications.
- While classroom-based learning will continue, especially with early phases of education, it will play a decreased role during an individual lifetime.
- In knowledge society, individuals of every age and background are invited to join in logical analysis, technical dissertations, rich and wide knowledge of diverse subject matters. "Intellectual activity is anywhere and everywhere, whether at the frontier of knowledge or in a third-grade class-room." (Jerome Brunner)

9.2.2 Definition of Key Concepts

9.2.2.1 Lifelong Learning

A cradle to grave process designed to provide any citizen with a constantly updated personal and professional development. A tool which enables him/her to face change, to adapt to the requirements of the labor market, to take responsibility for his or her own life, to attain personal fulfillment and to assume the responsiveness of an active citizen.

9.2.2.2 Knowledge Society

1. Is a society that creates, shares, and uses knowledge for the prosperity and well-being of its people.
2. Is what we should be seeking to build in the 21st century through networking, and acquisition of higher level cognitive skills.

9.2.2.3 New Approaches to Knowledge

1. The new approach will strike a better balance between purely formal knowledge, applied knowledge and meta-knowledge.
2. At the present time knowledge is conveyed through speech and the written word. In the future, there will be an extraordinary diversification of its representations, particularly through the new information and communications technology (ICT).
3. Cross-cutting themes, interdisciplinary approach will become more important than disciplinary one.

[3] http://en.wikipedia.org/wiki/Information_Age
[4] http://en.wikipedia.org/wiki/Knowledge_society

4. Knowledge will be inclusive and it will involve "higher-level" of cognitive domain:
    - Analyses
    - Synthesis
    - Evaluation
5. Learners will be more closely associated with the creation of knowledge and more involved in the learning process.

9.2.2.4 Learning in Knowledge Society

Implies to differentiate between:

1. superficial learning (reception/understanding/application)
2. deep learning (analysis/synthesis/evaluation)

Implies to construct knowledge, to make meaning, and continuous improvement of mental representation.

9.2.3 Constructivist's definition of learning

- Learning is the process of adjusting our mental models to accommodate new experiences.
- Learning is a search for meaning.
- Meaning making requires wholes as well as parts.
- Parts must be understood in the context of wholes.
- Therefore, the learning process focuses on primary concepts not isolated facts.

9.2.4 Four pillars of lifelong learning in 21st century

- Learning to know
- Learning to do
- Learning to be
- Learning to live together

Learning to know by mastering cognitive skills & collaboration.
Learning to do by mastering skills & production.
Learning to be by admitting multiple intelligent (MI) and sustainable human development.
Learning to live together by dialogue and tolerance.

9.2.5 Main objectives of lifelong learning

- Personal fulfillment and development throughout life (cultural capital)
- Active citizenship and inclusion (social capital)
- Employability (human capital)

9.2.6 Lifelong learning and Competencies

There are three broad types of competencies to be acquired through lifelong learning process:

1. Communicative competencies: the ability to speak, listen, write, negotiate, and mediate.
2. Analytical competencies: the ability to operate within systems of formal logic, to create models, and to display a sociological imagination.
3. Personal competencies - the ability to display "emotional balance," to accept diversity, to tolerate.

9.2.7 Key competencies

The key competencies mentioned above are neither school nor university topics, but are acquired in social groups or in the family. These competencies could be considered as tangible contribution to the lifelong learning process and to the construction of a knowledge–based society.

- Key competencies enable people to pursue individual objectives in a life driven by personal interests, aspirations, and the desire to continue learning throughout life (cultural capital).
- Key competencies allow everybody to participate as an active citizen in society (social capital).
- Key competencies upraise the capacity of each and every person to obtain a decent job in the labor market (human capital).

9.2.8 Dimensions of a Knowledge Society

The three specific dimensions of knowledge society are:

1. The political dimension
2. The operational dimension
3. The dimension related to the development of Human Beings

The **political dimension** implies developing a "learning culture" & "learning spaces" in civil society and in a work place.

The **operational dimension** implies all players in the lifelong learning process (institutions, NGO's, companies, trade- unions, education and training authorities, practitioners, municipalities, local communities, museums,...) in order to build strategic lifelong learning partnerships and networks to analyze learning requirements and remove barriers to access to learning.

The **dimension related to the development of human beings** is the heart of the matter, since it implies a focus on people and citizens rather than abstract terms, such as "human resources" or "end-users."

9.2.9 Best GLOBAL practices in lifelong learning

The best innovative practices in a European community are categorized under the following factors:

- Process-oriented innovation
- Goal-oriented innovation
- Context-oriented innovation

9.2.10 Implications of best innovative practices in lifelong learning

- Process-oriented innovation implies development of new methods, tools, or approaches, or improvement of existing methods.
- Goal-oriented innovation implies formulation of new objectives. For example, active involvement of local communities in the development of basic competencies.
- Context-oriented innovation are concerned with system(s) development and implies political and institutional structures and holistic approaches to integrate to sustainable human development.

9.2.11 Priorities for Action

1. Valuing learning
2. Information guidance & counseling
3. Investing time & money in learning

4. Bringing together learners and learning opportunities
5. Applying innovative pedagogy

Valuing learning by, for example, developing tools for assessing competencies and methodologies.

Information guidance and counseling by orienting people to manage their knowledge.

Investing time and money in learning by collaboration between public & private bodies.

Bringing together learners and learning opportunities by showing how "normal" instruments such as TV, popular music and theater, rituals, arts, books and reading can be used as powerful levers for inclusion through lifelong learning.

Innovative and critical pedagogy by adaptability to contexts and constructing knowledge through Constructive socio-cultural and holistic approaches to learning.

9.2.12 Epilogue

A knowledge–based society is a promising and challenging Global scenario with the advent of ICT in the 21st century. It carries both opportunities for personal advancement and the threat of being 'left behind." Opportunities provided to citizens through lifelong learning are a potential tool for empowerment. As pro-active lifelong learners we need to be equipped with new competencies as we construct knowledge personally through social processes and culture. To be equipped with the key competencies for lifelong learning in a knowledge society could be considered as a right and obligation of every human being.

9.2.13 Concluding point

It is high time to consider lifelong learning as a moral duty and/or ethical value of the Citizen of the world.

9.2.14 References

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6. http://www.pedagogy.ir[5] , Lifelong Learning - Pedagogy.ir - Pedagogy, Lifelong learning, Learning Environment & Performance & More

9.2.14.1 Responses

5 Responses to "Lifelong Learning in Knowledge Society Introduction"

9.2.14.1.1 1. Ken Udas - May 29th, 2007 at 9:47 pm

Farideh, First, thank you for this very interesting posting. I must admit that I have a rather special place for life long learning and I like your approach. Although I do understand that you are referring to all activities in which we engage as learning opportunities, I am wondering of you see a special role for formal educational institutions such as schools and universities in lifelong learning? What would schools and universities have

[5] http://www.pedagogy.ir/

to do to become more relevant to lifelong learning in the knowledge society that you describe? Are there organizations that are better suited to lifelong learning than are schools and universities? Ken

9.2.14.1.2 2. Farideh Mashayekh (Bazargan) - May 31st, 2007 at 3:01 pm

Ken, Thank you for your comment about Lifelong Learning in Knowledge Society.

Yes, I see a very special role for formal educational institutions such as schools and universities.

As you may have noticed in pedagogy.ir[6] site logos, LLL. starts from cradle to grave .Therefore, formal educational institutions are supposed to prepare learners (from early ages up to graduation and after) with generative skills and key competencies. Such as: communication and research skills ,information and scientific literacy. These skills and competencies are either included in existing curriculum or should be included and strengthened. Farideh

9.2.14.1.3 3. Ken Udas - June 1st, 2007 at 12:38 pm

Farideh, Thank you. I think that there is a lot here. I am interested in hearing your thoughts about some of the relationships between life long learning in formal institutions like schools, universities, trade schools, corporate training, etc., and the type of life long learning that happens in very informal contexts. For example, the learning that occurs when your first birthday is celebrated, your first contact

with a computer, your first experience with the police, etc.

- Can informal and formal life long learning experiences inform each other?
- How can curriculum in formal learning organizations support the healthy development of life long learning?
- How do we capture our learning so it can be shared with others? That is, what types of artifacts can be generated and shared?

Thanks Ken

9.2.14.1.4 4. Farideh Mashayekh (Bazargan) - June 1st, 2007 at 2:01 pm

Ken, Thank you. Following are answers to your interesting questions:

1. Yes, formal and informal lifelong learning experiences can inform each other through the adoption of constructive approach to learning.
2. The curriculum in formal learning institution can support the development of LLL.through mastery of deep learning and critical thinking.
3. We can capture our learning through the improvement of our mental representation.

regards, Farideh

9.2.14.1.5 5. Ken Udas - June 4th, 2007 at 4:55 am

Farideh,

Thank you. I would like to follow up a little more about how you see the sharing of learning through "mental representations." Clearly, life long learning (LLL), as you have described it, has an active component in which learners engage with each other and their environments. I assume that LLL does not necessarily happen in isolation and that it can be quite social. Frequently part of active learning is the generation of artifacts, things that have some information content that can be shared. I am wondering if you can describe some of this in terms of your conception of LLL and the potential usefulness of open educational resources.

I am very interested in learning your thoughts about the types of things that are typically created through LLL and how we will share them. Is there an opportunity to network life long learners and the LLL process across cultures and boarders, at a distance, perhaps using technologies to connect learners? If so, could you describe this? Ken

[6] http://www.pedagogy.ir/

9.3 Summary[7]

9.3.1 Summary - Lifelong Learning in Knowledge Society

Lifelong Learning in Knowledge Society, the seventh installment of the Impact of Open Source Software Series, was posted on May 30, 2007, by Farideh Mashayekh, who serves as a Strategic Consultant in Educational Planning and Pedagogy with Pedagogy.ir. Thanks Farideh!

Farideh's posting was organized in an outline form, in which she addressed a range of issues that tied together life long learning, the knowledge society, e-learning, and active, experiential learning. Life long learning was cast as a constructivist social activity based on relationships among humans, technologies, other artifacts, and knowledge. Farideh posits the value of life long learning in terms of civic engagement and human development.

Farideh ends her posting with a statement that echoes some general concerns about globalization and points to the need for authentic experiential learning and the development of competencies and resources to meet our potential.

> *A knowledge–based society is a promising and challenging Global scenario with the advent of ICT in the 21st century. It carries both opportunities for personal advancement and the threat of being 'left behind." Opportunities provided to citizens through lifelong learning are a potential tool for empowerment. As pro-active lifelong learners we need to be equipped with new competencies as we construct knowledge personally through social processes and culture. To be equipped with the key competencies for lifelong learning in a knowledge society could be considered as a right and obligation of every human being.*

9.3.2 Comments

Although the dialog for this post was lighter than some previous postings, we did engage in some discussion about the role of formal educational institutions in life long learning. We did exchange some ideas about the creation of learning artifacts, but never really developed a dialog about the nature of the artifacts and if they could serve as open educational resources or if they could be collaboratively developed through acts of social learning. I do welcome continued discussion on these points.

[7] This content is available online at <http://cnx.org/content/m14755/1.4/>.

Chapter 10

Not IT, not Business Processes, but Organizational Culture (Craig Perue)

10.1 Introduction - Craig Perue[1]

10.1.1 Craig Perue - Introduction

Figure 10.1

Craig Perue was appointed as the first staff member in the Instruction Support Systems unit in the IT department of the largest University of the West Indies campus in 2003. Craig was responsible for stimulating faculty adoption of WebCT which was being implemented across the University that year. The programme was so successful that the campus outstripped its budget for WebCT licenses which then allowed Craig to lead the evaluation of open source alternatives and one of the largest early implementations of moodle (15,000 students) in January 2004. As the manager of the campus's educational technology practice, he led the campus's re-branding and development of moodle as OurVLE and the campus's migration away from WebCT, as well as the successful evangelization of moodle throughout the University and the English-speaking Caribbean.

[1]This content is available online at <http://cnx.org/content/m14751/1.7/>.

10.2 Not IT, not Business Processes, but Organizational Culture[2]

NOTE: Author - Craig Perue, "Not IT, not Business Processes, but Organizational Culture". Originally submitted June 14th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

10.2.1 Introduction

About one week before I joined the IT department of the Mona campus of The University of the West Indies (UWI) as the first staff member of Instruction Support Systems (ISS, the educational technology unit), I sat in a room with about twenty other persons, primarily faculty members, and was trained to use WebCT, as part of the forty or so persons on our campus to be so trained.

The next week I was put in charge of ensuring that faculty members across the campus adopted the system. That was May 2003. Four months later and two IT staff members richer, having worked long hard hours with faculty members on the Mona campus, we had about twenty four courses with over a thousand unique students ready to go for the start of the first semester.

Both the faculty members and I thought this was an immense success - but at that point I was informed that the University simply could not afford that many licenses. They wanted me to ask the faculty members to use another proprietary system with lesser functionality.

In apologizing to my clients, I assured them it would never happen again. I also told them plainly why it had happened, and why it would not recur. The reason it wouldn't recur, of course, is because we would implement an open source replacement by the next semester. And that was how I came to receive permission from the IT Management team and the blessings of our faculty members to deploy the University's first open-source enterprise system.

10.2.2 A little background on the University of the West Indies

With three campuses - Cave Hill[3] (in Barbados), Mona[4] (in Jamaica) and St Augustine[5] (in Trinidad) in addition to twelve centres in the other contributing countries (known as the UWI-12), The University of the West Indies currently has a total enrollment of over 36,000 students and graduates annually approximately 5,800 students (at undergraduate, graduate and diploma levels).

10.2.3 Evaluation, Selection and Implementation

Below, I will suggest why I think higher education institutions ought to consider open-source software, but first let me quickly gloss over the evaluation, selection and implementation. Other than licensing regime – it had to be an open-source license, there were three other demands imposed by our particular circumstances.

1. Since WebCT was being aggressively implemented by the Distance Education Centre[6] and the other two campuses, the replacement would need to be implemented as soon as possible to reduce the number of persons who would need to be re-trained for the entire University to adopt the FLOSS replacement.
2. Because the influential, tech-savvy first adopters across the University would be among the WebCT user base by the end of the first academic year, the replacement system would need to have a low learning curve relative to WebCT for these persons and at the same time provide additional value other than cost-savings (since their campuses could afford WebCT).

[2] This content is available online at <http://cnx.org/content/m14749/1.10/>.
[3] http://www.cavehill.uwi.edu/
[4] http://www.mona.uwi.edu/
[5] http://www.sta.uwi.edu/
[6] http://www.dec.uwi.edu/

3. Although 2003 marked the official launch of the first University-wide LMS implementation, several other LMSs were already in use or proposed for use in 2003 by individual departments, and so any replacement system would need to provide an equivalent or more powerful set of features.

By early October 2003 the evaluation had begun with literature reviews, visits to other institutions, and discussions with faculty members and academic leaders to gather requirements. A few courses were deployed on WebCT to help us in the information gathering process.

The evaluation processes were very inclusive and the University-wide dialogue was facilitated in part by a discussion group on the development instance of Moodle[7] . During the second semester, the consensus on the Mona campus was that we would deploy Moodle as the campus's LMS, and we voiced our hope that the other campuses would follow as soon as summer of that year.

At Mona we led the indigenizing process by creating a UWI theme for the user interface, integrating it with our central authentication system, our homegrown Student Registration System, the email system, and later the Badging system (for photo IDs of staff and students). We also took the strategic decision to re-brand it, OurVLE[8] , for Our Virtual Learning Environment.

10.2.4 The Long View

I acknowledge that there are situations in the Academy in which closed-source proprietary software is still the best choice, for example for my video editing staff and many of our multimedia production situations, although we continue to monitor the evolution of software applications like Jahshaka, MythTV, and Red5. However, I believe those situations are rapidly decreasing as more mature open-source software become available.

From a strategic perspective, there are very sound reasons within the Academy for adopting free (libre) open source software (FLOSS[9]), that are far more important than short-to-medium-term cost savings. Three documents I read in 2003 were especially important influences on my thinking regarding open source software in education. The position I held before moving to the IT department was with the Office of the Board for Undergraduate Studies which included the University's Quality Assurance Unit. Two of the documents are explicitly about quality: the Baldrige Education Criteria for Performance Excellence and Quality on the Line: Benchmarks for Success in Internet-Based Education[10] . The other was Nicholas Carr's article "IT Doesn't Matter[11] " which was published the very month I joined the IT department in May 2003.

My conclusion is different from Carr's for good reasons. I concluded that publicly funded higher education institutions located in small developing economies that are vulnerable to numerous external forces, such as the UWI, needed to adopt FLOSS very soon. They need to become an active part of the developer community and help determine the relevant software application development roadmaps.

However, I agree with Carr that many information technologies will become commodities that do not confer competitive advantage. Further, as the higher education sector matures, with the incursions of non-traditional for-profit providers, the emergence of corporate universities, and the increasing prestige associated with credentials bestowed by professional associations, and the forces of globalization and regulation by the World Trade Organization, hyper-competition will drive higher education institutions to develop operational efficiencies we do not even imagine now.

Undoubtedly IT will be critical to realizing these operational efficiencies, but even more important will be designing the most efficient processes and systems to automate. However, much of what needs to be done to register a student and provide other student support services is straightforward and will not provide sustainable competitive advantages, as foreign business processes can be bought, brought into an organization, and implemented, as I have heard my colleagues complain for years about the Banner implementation.

[7] http://moodle.org/
[8] http://ourvle.mona.uwi.edu/
[9] http://en.wikipedia.org/wiki/FLOSS
[10] http://www.ihep.org/Pubs/PDF/Quality.pdf
[11] http://www.nicholasgcarr.com/articles/matter.html

How much competitive advantage is an institution likely to derive when it is using the same business processes as everyone else, and has the same cost structure, having bought the same closed-source software packages? Not much, I think. In fact, in time I believe those functions will be outsourced and higher education institutions (HEIs) will only keep for itself the student-, parent-, and alumni-facing functions. These "customer" facing functions are what will allow one HEI to differentiate itself from the others, and the development of a powerful, distinct brand. Some of these functions include:

1. Course design and some aspects of course development
2. Teaching, tutoring, facilitation of student learning
3. Marketing and Communication

It is for the effective delivery of these two first functions why involvement in the FLOSS communities will matter so much for HEIs. For a large, traditional university with a well-established full-time faculty interested in teaching, much like the UWI is, it would make very little sense to outsource course design or teaching, tutoring, or facilitation of student learning, since:

1. Our teachers know our students better than anyone else and this knowledge can be developed into a competitive advantage for designing courses for them, provided that knowledge is complemented by generic teaching skills, constantly supplemented by teaching scholarship and research, and very importantly by information and communication technologies (ICTs) that allow for rapid adaptation of learning objects, and learning designs. I submit that these ICTs have to be FLOSS, since modifying the tools themselves will be a part of the core business of the University, that is, advancing the technology for teaching and learning. Some aspects of course development, such as the development of web pages and illustrative graphics are not complex and so can be readily outsourced if it is cost-effective. However, some types of learning objects can be quite complex and effective and the organization's ability to rapidly develop and adapt them could conceivably become a source of competitive advantage.
2. Teaching, tutoring, facilitation of student learning are way too little understood and complex at present, to be automated. The complexity and difficulty provides an opportunity for the organization to develop deep smarts in that area which can be leveraged for competitive advantage, so outsourcing is an unattractive option. Additionally, since teaching is believed to be one of the most effective means of stimulating learning in the student-turned-teacher, I believe that peer-to-peer and small group teaching and learning will become a larger part of our pedagogical practice, and this too will drive the demand for a wider variety of teaching and learning technology tools. As Ruth Sabean pointed out in the first post in this series, a 'developer culture[12] ' in the HEI facilitates this kind of activity and reliance on external software companies to facilitate that kind of faculty and student-driven innovation is unlikely to be as successful.

Probably for all HEIs, but especially for those with tightly constrained budgets, it is critical to find existing open-source applications to build on to get the maximum impact from in-house developers' time and energy. In the long term then, acceptance of FLOSS in the Academy is essential to support innovation in teaching and learning. Below, I will go into the reasons it is necessary to adopt FLOSS now rather than later.

10.2.5 Organizational Culture

Open source software is not incidental to my unit's business model; for very deliberate reasons it is at the very heart of the way we do business.

As professionals we are defined by others by the services we provide them and our relationships with them. Our tools are key to enabling us to provide those services and affect the quality of the services we can provide. It is important therefore to choose tools that empower us as IT professionals, and allow us to serve our clients well and empower them. In designing Instruction Support Systems in 2003, it was my goal

[12] http://blog.worldcampus.psu.edu/index.php/2007/03/12/ucla-selects-open-source-solution-part-2-interview-with-ruth-sabean/

to design a unit that would function as a trusted advisor and strategic partner to the UWI teaching and learning community. I believe/d FLOSS was essential to realizing that vision.

In contrast, in quite a number of IT departments in our Caribbean organizations, including our HEIs, IT staff simply install proprietary software and provide Help Desk type support to their clients. This is especially the case for smaller and younger organizations. For most small organizations, because proprietary closed-source software closes off the very possibility in many cases for changing software to meet particular organizational needs, clients learn not to ask for modifications and IT staff learn not to encourage clients to think too much about their particular needs, needs which would be expensive to meet with such license regimes. (In fact one of my Deans still occasionally reminds me I tried to get him to use WebCT.) In some ways then, proprietary closed-source software is fundamentally disempowering. Of course this is not the case for software that meets or exceeds your needs. Also, it is not only license regimes that disempower IT staff and the entire organization; poorly documented or architected software, regardless of license also has a disempowering effect, as does lack of appropriate IT skills for both end users and IT staff.

However, what I am interested in getting at is the significant empowering effects of FLOSS in the enterprise and the enormous positive impacts on organizational culture.

FLOSS gives us the power to say to faculty members and other clients, "imagine what you want, think it through and tell me on Monday morning." On Monday, we can sit with them in their office, discuss their requirements, and maybe even show them a demo application hosted on a virtual machine somewhere in the data centre. We can continue to refine requirements, timeliness and required resources, and if need be, discuss honestly why it is not feasible to do it until next year or the year after or the next decade.

Clients may be disappointed, but they feel empowered because they know the default response to their requests is "let's talk about it." And we can afford that response not because we have an army of developers to throw at any problem, but because the riches of the open source community is now a University resource. (However, I do not mean to suggest that the majority of University staff are already so empowered that the rate of requests is at the desired level. We need to do more marketing and capacity building.) I am very happy that I do not have to worry about my clients rejecting an open-source application because of a stigma attached. Except for the more tech-savvy clients who want to know that the applications they are using are open-source, few clients raise the issue of the license type.

It is relatively straight-forward too to see how involvement in the FLOSS community allows me to rapidly align or re-align the IT unit with the organization's strategic goals. Not having to worry about adding to the significant software license burden (which are called mandatory costs here at UWI), long procurement periods, context-free vendor presentations, political jockeying with other units for scarce resources, means I can get the software installed with at least three times the efficiency and even greater responsiveness to changes in organizational priorities, than if I were trying to use equivalent proprietary software in most instances. This has allowed us to focus some of that saved attention on implementing proper control and service management frameworks using the Control Objectives for IT (COBIT) and the ITIL Service Management framework.

What really excites me too is that using open-source software allows me to co-imagine and implement an academic IT architecture that we could never afford to implement using proprietary equivalents. Here is a list of some of the server applications we have been working with since August 2006 and expect to work on for another two years. I look forward to discussing other possible choices with you.

Installed	To Install
OSPI	OpenCRX
OJS	ProjectNet
Drupal	Alresco
MediaWiki	uPortal
DSpace	MythTv
Pentaho	
Red5	

Table 10.1

Finally, and probably best of all, FLOSS allows me to give my staff interesting work to do and allows them to be creative in developing both deep technical skills and client relationship skills that will serve them well wherever in IT they choose to work.

I look forward to discussing some of these issues with you.

10.2.5.1 Responses

11 Responses to "Not IT, not Business Processes, but Organizational Culture"

10.2.5.1.1 1. Ken Udas – "Not IT, not Business Processes, but Organizational Culture"

Craig, Hello. Thank you for this interesting and thoughtful posting.

To kick things off I would like to gather your thoughts on the notion of "Open Source Teaching" that was introduced in James Dalziel's posting Learning Design and Open Source Teaching, which marries OSS in terms of the "learning code" that underlies learning design and OER in terms on the content that is part of the learning design.

I ask this because of your treatment of "programme differentiators,"

> *These "customer" facing functions are what will allow one HEI to differentiate itself from the others, and the development of a powerful, distinct brand. Some of these functions include:*
>
> 1. *Course design and some aspects of course development*
> 2. *Teaching, tutoring, facilitation of student learning*
> 3. *Marketing and Communication*
>
> *It is for the effective delivery of these two first functions why involvement in the FLOSS communities will matter so much for HEIs. For a large, traditional university with a well-established full-time faculty interested in teaching, much like the UWI is, it would make very little sense to outsource course design or teaching, tutoring, or facilitation of student learning, since:...*

coupled with the impact of customization that you value in FLOSS, and the economic benefits of FLOSS that you note in your posting. Are you applying the principles of FLOSS to course design, development, and teaching? Are you or your colleagues at UWI involved with using and developing open educational resources or with Learning Design as defined by James Dalziel? Thanks. Ken

10.2.5.1.2 2. Craig Perue - June 18th, 2007 at 9:14 pm

Ken, thanks for the feedback. I do believe that a teacher's ability to create effective learning designs will be a critical differentiator in a future where Wayne Mackintosh and the other folks at WikiEducator and all those involved in Open Education Resource movements have succeeded in making high quality learning objects common and available to all. Here I am using learning design in the broad sense (as opposed to the narrow technical meaning that James Dalziel explained previously) – simply put – it is how you arrange learning objects and activities (which might include collaborative learning) to achieve specific learning goals, and although I have never thought about it as the "code" of teaching, I think the analogy works. In that analogy, teachers become the equivalent of software architects and engineers deciding the most effective and efficient ways to combine learning objects to meet the needs of their students. In the same way that software architecture positions are more resistant to outsourcing than programming jobs, I expect teachers who develop deep understanding of learning and teaching, and especially of how their students learn most effectively and efficiently, will continue to thrive. However this analogy should not be taken too far – learning design is not intimately bound up with computers and the internet. The lesson plans that our elementary to secondary school (or K-12 for the USA) teachers have created and documented for decades are learning designs, as are the sequences of learning objects and learning activities that our faculty members have created in OurVLE.

Since there are already electronic communities of practice where lesson plans are shared with open-source like licenses I suppose one could say that open source teaching has already begun. Here at the Mona campus, the Dean of our largest faculty agreed that all faculty members should have access to all the faculty's course websites on OurVLE, which in effect means that they would all be able to see all the learning designs, and importantly, how effective each was. This kind of openness is a good start, but I would be hesitant to say that we practice open-source teaching for two reasons. First, as others have pointed out, open-source is very much about issues of ownership and licensing, and while we have begun considering these issues I do not believe that the UWI's intellectual property policies as they relate to learning designs or learning objects meet the philosophical requirements of 'open source' (as defined by the Open Source Institute)[13] or even 'free'. The second reason is that we do not practice, on a wide-scale, for learning design or learning object development the kinds of collaboration and innovation that characterize open-source software development, although this may simply be a question of the maturity of the practice and not of its existence. It may also be because we have not implemented the kinds of tools that enable these kinds of collaboration, and am eager to look at some of tools mentioned in previous posts that will help, especially since the issues of open-source teaching across the University's four campuses have been extensively discussed recently (though not under that name) as part of an executive review of our eLearning policies and practices. We have also recently established a relationship with MIT's OpenCourseWare project in which we mirror OCW, and I expect this to stimulate discussions within departments about use of and contribution to Open Educational Resources, but I think that these issues are only just beginning to rise to top priority for the majority of our faculty members. I think faculty interest and involvement with learning design as Dalziel defined it is even further down on the priority list. One of the reasons I think we needed to adopt FLOSS early was precisely because it takes a while for the organization to absorb new concepts such as FLOSS and OER and change the business model and organizational culture appropriately.

I would also love to hear suggestions about business models that will support Universities that participate in open source teaching.

10.2.5.1.3 3. richardwyles - June 18th, 2007 at 10:26 pm

Hi Craig, Great read thank-you. With the separate campuses at Cave Hill, Mona and St Augustine you may be interested in the Moodle Networks work we've been doing. It's standard in Moodle 1.8 and allows for a single-sign-on framework down to the individual course and student level. You can also create a Moodle Hub with common resources available for other networked Moodles. All the best, Richard

[13] http://www.opensource.org/docs/definition.php

10.2.5.1.4 4. Craig Perue - June 19th, 2007 at 4:32 am

Hi Richard. Moodle Networks is definitely going to be a huge boon to further collaboration and innovation across our campuses. I am also excited about what you have done with Eduforge since I am very interested in providing the kinds of tools that allow staff members to collaborate on learning objects and learning designs with the kind of sophistication available to software developers using SourceForge. I am especially interested in providing some kind of version control facility, so that staff can develop multiple versions of a learning object starting from a common base object, without too much confusion. Whereas, as you pointed, out forking the development of Moodle would have been counter-productive in your situation, I want to encourage faculty members to think critically about their students' needs, their own teaching philosophy and then fork the development of the learning objects appropriately. As Wayne Mackintosh has written, education is always contextual. Given your long experience with Eduforge, what do you think?

10.2.5.1.5 5. Ken Udas - June 20th, 2007 at 5:10 pm

Craig, Thank you for the very thoughtful reply. First, I want to mention that Penn State (my home institution) is not engaged in "open source learning" at the institutional level. That said, a group of us is developing a white paper to start addressing such issues within the Penn State context, which should be very interesting. At some point the effort might merit a posting.

You mentioned in an earlier comment you mentioned a bold and exciting position of one of your Deans as follows:

> *Here at the Mona campus, the Dean of our largest faculty agreed that all faculty members should have access to all the faculty's course websites on OurVLE, which in effect means that they would all be able to see all the learning designs, and importantly, how effective each was.*

I am very interested in learning about faculty reaction to your Dean's position on opening content. Were the faculty receptive to the idea, did the Dean prepare the faculty, how are you implementing this effort, and do you think it is a first step in opening content more broadly (outside of the faculty)? How are you measuring effectiveness?

I think that many of us who work in Universities could learn from your experience. Cheers, Ken

10.2.5.1.6 6. Craig Perue - June 26th, 2007 at 3:33 pm

The suggestion to make the content viewable by all faculty members was made by another faculty member who was interested in learning from the online teaching and learning that was already occurring in the faculty. While I wholeheartedly supported the suggestion I think it helped that the suggestion did not originate with the IT staff. The Dean canvassed his academic heads of department and the faculty members using OurVLE and so far as I know the decision was democratically made and embraced by faculty members. That the faculty members using OurVLE at the time were the more adventurous and open staff members no doubt helped in the initial success of this policy. The decision was communicated by the usual faculty mechanisms, and it has more or less become a standard way of how we operate. The academic heads of department have smoothly managed the few objections that have been raised. Semesterly emails about our policy regarding OurVLE operations are sent to faculty and support staff so that the policy message is continuously reinforced.

In response to your question about whether I think this move is a first step in opening content more broadly, I would say that openness within the institution allows us to begin thinking about opening the content to an even wider audience. Limited openness gives faculty members and the management team time to realize some of the implications of openness, adapt and begin thinking about the implications of even greater openness. However, whether that wider openness will ever e realized will depend on a lot of other factors such as what other tertiary institutions are doing, how or whether this wider opening will benefit the institution and the individual faculty members, and the other usual questions about a viable business model. In other words, I think that it remains to be seen when open source learning-teaching will be realized.

10.2.5.1.7 7. Ken Udas - June 28th, 2007 at 4:52 am

Craig, Thank you. It sounds as if part of your institution's successful entry into internal organizational change is due to faculty leadership from the beginning of your efforts and ongoing communication. I think that it could be a great service to the larger education community for you and some of your colleagues at UWI to record your activities and make your story available to learn from.

Once again Craig, thank you for your contributions. Ken

10.2.5.1.8 8. Pat Masson - July 4th, 2007 at 8:42 pm

Craig,

Very interesting read. I think many of the points you raise regarding benefits to smaller institutions are spot on. However, while I wholeheartedly agree FLOSS provides the means for implementing a broad array of systems and services, especially in resource restricted institutions, many who argue against the use of FLOSS site the same as the very reason to use commercial offerings, emphasizing contracted support supplements the limited resources on campus.

While there are many examples of service providers who will gladly enter into a support contract to support open source applications, the arguments seem to persist. Considering the above, what really struck me was your comment, "I am very happy that I do not have to worry about my clients rejecting an open-source application because of a stigma attached. Except for the more tech-savvy clients who want to know that the applications they are using are open-source, few clients raise the issue of the license type." Am I correct in assuming your clients do not raise issues regarding, "total cost of ownership," "long term support," "quality," "added staff," etc.?

In my post, I posed this very culture as the ideal: a faculty and administrative body who derives functional requirements/needs based on their business processes and leaves the technical requirements to the IT department.

Please share you secret, how did you achieve such a paradise?

10.2.5.1.9 9. Craig Perue - July 6th, 2007 at 8:34 am

Thanks for great questions. I hope my answers do them justice.

> *However, while I wholeheartedly agree FLOSS provides the means for implementing a broad array of systems and services, especially in resource restricted institutions, many who argue against the use of FLOSS site the same as the very reason to use commercial offerings, emphasizing contracted support supplements the limited resources on campus.*

I think both arguments are valid in different contexts. In choosing between any number of products regardless of license types, I urge IT organizations (and their clients in appropriate situations) to look at "total cost of ownership," "long term support," "quality," "added staff," and how these software acquisitions would fit into the larger IT portfolio. In some markets contracted support for some products, whether FLOSS or proprietary, may be cheaper than hiring and training your own support staff. In that case the sensible thing to do is to contract the support. Even in such situations though, it may be to the organization's advantage to choose a FLOSS rather than a proprietary product to avoid vendor lock-in for support.

In the Caribbean paying for contracted support usually means paying for international airfares and telephone bills because of the scarcity of appropriate local technology support staff. It also means paying fees for consultants that live in higher cost cities, and thus charge higher wages, than local staff would. All this makes for a very strong business case for hiring and training our own technology support staff who develop deep organizational smarts and contribute to our own capacity to innovate using FLOSS.

> *In my post, I posed this very culture as the ideal: a faculty and administrative body who derives functional requirements/needs based on their business processes and leaves the technical requirements to the IT department.*

Please share you secret, how did you achieve such a paradise?

First, I was very fortunate to get the opportunity to build an IT Unit from scratch within the larger IT department. In that respect I was more fortunate than some CIOs who find themselves dropped into hostile organizational cultures which they must try to change both within the IT department and outside in the functional departments. Having the rare opportunity to build an IT Unit from scratch, I decided very early on to take the long view and try to develop a very specific type of IT organizational culture by:

1. emphasizing the development of deep understanding of the technology but an even greater focus on meeting client needs
2. developing super-effective systems that work (based on COBIT[14] , ITIL[15] , PMBOK[16]) rather than personal heroics
3. hiring staff who seemed to share appropriate values and attitudes.

It is critical to have systems and employees that project appropriate values and attitudes in all the interfaces or touchpoints with clients, so that an appropriate culture of partnership and interaction develops. At the start of my tenure in the IT department here, my goal in working with our clients was to build their trust in:

1. The eagerness of the IT department to understand their needs and meet them unselfishly (that is, without succumbing to the urge to suggest the most sophisticated or "fun" technology even though it may be overkill or simply inappropriate for the context).
2. The absolute honesty of the IT department, including knowing that the IT department will tell the client if his/her needs cannot be met, and why, rather than stringing him/her along for months without a proper solution.

Most clients I have met believe that a half good solution implemented today is better than the best solution that never gets deployed. On the other hand, I have seen clients develop immense resistance to a software implementation projects because, with the best intentions in the world but the wrong approach, IT staff preached to the clients that this newest project was critical to taking the clients out of the dark ages, reforming their business processes, and saving the organization from perdition. This approach is usually unproductive for two major reasons:

1. As Andrew Carnegie pointed out decades ago, criticizing someone almost always raises their resistance to you.
   - So, should the IT department tell the Bursary that their business processes are archaic – in effect questioning their competence - it is usually fanciful to expect the Bursary to respond by asking the IT department what new multi-million dollar software the IT department would like to install to facilitate the necessary re-engineering. Sometimes functional departments are well aware of the need for change but have different priorities from the IT department. The IT department's job is to keep the dialogue open so that when the functional department is ready, they will look to the IT department as a partner; or, the IT department can help to change organizational priorities through an IT Governing Council or any of a wide range of organizational change techniques (which do not include preaching).
   - At the level of the individual worker, we need to consider that many people's jobs are a huge part of their identity – after all, they spend a large part of their waking lives at work. It is therefore critical that in our eagerness to achieve "faster, cheaper, better" that we not trample upon the significant personal investment many persons have in the way they do their work. In contrast to preaching, I think one of the most effective ways to get staff members to adopt a

[14] http://www.isaca.org/cobit.htm
[15] http://www.itil.com/
[16] http://www.pmi.org/

new technology is to show them how it will reinforce their sense of worth and increase the value they bring to the organization. On the other hand, I have seen staff members develop immense resistance to technology deployments for the sole reason that they believed the technologies were being insensitively deployed.

2. It is very rare that IT staff will know as much about the reasons for the organization's functional processes as much as the functional staff, whether these functional staff are accountants, registrars, estate managers or teaching staff. So while it is helpful for IT staff to bring their learning about the best practices in the functional area to the discussion, it is even more essential that they dialogue with the functional staff openly to uncover the nuances which are essential for a good implementation in the particular organization.

I guess what I am saying is one has to work really hard to become a trusted advisor[17] , by showing the clients respect, gaining their trust and working really hard to keep it.

Regards, Craig.

10.2.5.1.10 10. Patrick Masson - July 6th, 2007 at 10:46 am

Craig,

Thanks so much for the considered and detailed response–you have me thinking churning–I don't know where to start.

I am particularly struck by

> *"I urge IT organizations (and their clients in appropriate situations) to look... ...how these software acquisitions would fit into the larger IT portfolio."*

I wonder how many IT Departments have an accurate inventory of the scope of services and the number of systems (including their dependencies) they support (and even the operational costs associated with these)? When I entered my current position, I was struck by how unaware both the IT department and the campus (business units) were, of not only what was in production/development, but also how current systems and services were technically integrated with one another and functionally integrated within business processes. Without this understanding (portfolio management: http://www.cio.com/article/31864/Portfolio_Management_Done_Right/4[18]), it seems logical, decision making, project readiness and prioritization will not be qualified and the risk of project failure increases.

Here at Delhi, I began the "inventory process" (building an IT portfolio) using an operational budget. Looking back at annual expenses from the past two years (that's as far back as the records went!) allowed us to define groups of services (help desk, training, etc.) and list the systems (email, archiving, phones, etc. Further, and more detailed analysis (e.g. one time costs vs. repeating) provided greater detail into the services and systems but also their inter-dependencies. In the en, not only did we have an operational budget, but it was itemized based on the now defined IT Business Units.

What methods did you use to understand and develop your IT portfolio (even distance learning), especially considering the previous deployment of WebCT, where, after considerable time and effort, you where informed that the University simply could not afford that many licenses? Was that a reference point through which you demonstrated the need to better understand, perhaps not only your IT portfolio, but institutional goals and business processes as well (understanding the hesitance to preach or criticize)? It seems like a failed deployment of WebCT (for non-technical reasons), would be a good starting point to understand not only the IT portfolio, but also departments' and even institutional objectives (i.e. why wasn't there an understanding of the associated costs for a successful online learning program by the institution?) I just hope that kind of "learning experience" isn't always needed!

I am also very impressed to hear of your, what might be called "institutional values." I was wondering if you could give some examples of specific instances where these principles came into play, either with existing

[17] http://www.amazon.com/TRusted-Advisor-H-Mister/dp/0743212347

[18] http://www.cio.com/article/31864/Portfolio_Management_Done_Right/4

faculty/administration/IT staff (those who pre-dated your arrival) or with regard to a project? Did the issues with the WebCT deployment trigger a reassessment of the IT department's culture and operations? Or if the culture was in place prior to or during the deployment of WebCT, what advise could you give for those who would like to implement the same culture, but avoid the first outcome?

And finally, the values described sound very much like the principles of the Agile Manifesto (http://agilemanifesto.org/principles.html[19]). While agile methods are usually associated with software development, how do you feel they might apply to the general field of IT project management and the various practices mentioned: COBIT, ITIL, PMBOK?

Craig, thanks again, I could go on and on-lots of neat stuff–you really have me thinking.

Patrick

10.2.5.1.11 11. Craig Perue - July 6th, 2007 at 2:01 pm

Thanks for more useful questions Pat.

> *What methods did you use to understand and develop your IT portfolio (even distance learning), especially considering the previous deployment of WebCT, where, after considerable time and effort, you where informed that the University simply could not afford that many licenses?*

At the outset I used strategic analysis and planning methods such as SWOT analysis, forecasting, and the Balanced Scorecard but it was Service Level Management as defined in ITIL v.2 together with the Management Guidelines of PO3 (Define Technological Direction) in COBIT that were most helpful. Seeing the organization as the Executive Management team, faculty members, students and non-technology staff saw us – as a bunch of services (and costs) was important – so we created a Service Catalogue for dialogue with our clients, with a lot of ancillary data for internal management use (such as associated human resources, profitability etc.). Corresponding to the Service Catalogue, the Architectural standards would usually be the basis for beginning discussions about specific technologies with IT staff.

> *Was that a reference point through which you demonstrated the need to better understand, perhaps not only your IT portfolio, but institutional goals and business processes as well (understanding the hesitance to preach or criticize)?*

Yes, it certainly was a major reference point. I think a lot of IT organizations have been battling with IT-business alignment in recent years. The buzz around IT governance and enterprise architecture, and the emerging prominence of frameworks such as ValIT[20] and TOGAF[21] , and new journals such as Microsoft's The Architecture Journal[22] attest to this. In the early days I did make a presentation to the IT Management team in which I suggested that we needed to do some soul-searching just as you have stated. I was gratified when I found an acronym I had coined to describe our core business processes (TLAR – for Teaching, Learning, Assessment and Research) started showing up in various discussions across the campus.

> *I am also very impressed to hear of your, what might be called "institutional values." I was wondering if you could give some examples of specific instances where these principles came into play, either with existing faculty/administration/IT staff (those who pre-dated your arrival) or with regard to a project?*

The deployment of OurVLE itself is probably the most visible example I can think of on this campus, where the right approach in deployment was critical. There was an immense amount of initial resistance from both IT staff and from faculty to the deployment of OurVLE for several reasons including:

1. No one had ever heard of moodle before, much less OurVLE.

[19] http://agilemanifesto.org/principles.html
[20] http://www.isaca.org/valit
[21] http://www.opengroup.org/togaf/
[22] http://msdn2.microsoft.com/en-us/arcjounral/default.aspx

2. Our University had never deployed an open-source enterprise system before, and so some IT staff were very vocal about their doubts that the deployment would succeed.
3. The Commonwealth of Learning's review of open-source learning management systems[23] that came to our attention during the evaluation phase recommended ATutor[24] and Ilias[25] over moodle, so some IT staff were less enthusiastic about moodle than these others.
4. Most of our faculty members who had recently returned from Universities in the United States had worked with WebCT and BlackBoard, and saw a free (open-source) alternative as inherently second-best.
5. The recent deployment of another major (proprietary) enterprise application had left a bitter taste in some faculty members' mouths.

The only way I saw to overcome this resistance was by building trust with potential clients. In particular I told faculty members that I could not guarantee that OurVLE would be prettier than any of the proprietary alternatives, but I would guarantee that it would be easier to use. I would not guarantee that it would provide all the features of the alternatives, but it would provide all those they were used to using. I would not guarantee that it would always work, but I would guarantee that I would always be honest with them about its status. And perhaps most importantly we did not tell anyone that if they did not adopt it, that their non-adoption meant they were backward. Quite the contrary, we emphasized that at the start we only expected the adventurous first adopters to jump in, and that we knew that others would come onboard once the system had been proved. Of course, increasingly more and more staff wanted to be "with it" and enthusiastically adopted. I think it helped that we did have major technical issues, especially with the chat module in the first year, and because we were very open with faculty members and students about it, and they saw that we were committed to working with them to get around the obstacles, they became very loyal clients, and evangelized our services all the more.

> *Did the issues with the WebCT deployment trigger a reassessment of the IT department's culture and operations? Or if the culture was in place prior to or during the deployment of WebCT, what advise could you give for those who would like to implement the same culture, but avoid the first outcome?*

I don't know that it is entirely possible to avoid the first outcome, since once you are using proprietary software you may be at the mercy of your vendor regarding license fees. However, one can significantly reduce the risk by having good data and using that data in a structured planning and managing framework such as is described in the PMBOK. Unfortunately, as you have pointed out this data is not always readily available.

> *And finally, the values described sound very much like the principles of the Agile Manifesto (http://agilemanifesto.org/principles.html[26]). While agile methods are usually associated with software development, how do you feel they might apply to the general field of IT project management and the various practices mentioned: COBIT, ITIL, PMBOK?*

In 2003-2004 I was very much a fan of the Agile Methods movement which may explain the similarities. But as a manager within a large institution, it is important to emphasize that work must be aligned with the larger formally defined institutional strategy and executed within the parameters defined by the overall control framework. At least two of the practices associated with agile methods are relevant to the provision of a wide range of IT services.

1. Frequent unfettered communication among team members is very helpful to providing the best quality of service to clients. For example, I frequently overhear my team-members' conversations with clients,

[23] http://blog.worldcampus.psu.edu/http:/www.col.org/colweb/webdav/site/myjahiasite/shared/docs/03LMSOpenSource.pdf
[24] http://www.atutor.ca/
[25] http://www.ilias.de/ios/index-e.html
[26] http://agilemanifesto.org/principles.html

and having been familiar with these clients longer than my team-members have, am usually able to provide some insight into the clients' needs, or to be able to relate them to larger organizational goals, which better equips the team-member to serve the client. Frequent (several times a week) discussions among staff about the services being offered, the controls in place, and the methods being used, deepens the shared understanding of these different practices and strengthens the organizational culture. It also makes for easier business continuity. However, I do believe in the need for high quality documentation – that is, documents that will be used. COBIT and ITIL are especially helpful in defining some of these.

2. Rapid iterations with frequent client input is especially useful in all kinds of projects, whether one is planning a large multimedia supported event, developing an online course or a new learning space. Whether the client is just located across campus, or seventeen hundred miles away in Toronto[27] , frequent oral communication is critical to developing the shared understanding and trust levels that enables project teams to collaboratively overcome obstacles. It may appear as a paradox, but some documentation is also critical to ensure a shared understanding (especially for a widely distributed, multi-lingual team) and efficient collaboration. A Guide to the Project Management Body of Knowledge is useful in suggesting what some of this documentation ought to be, in guiding the team in its collaboration, and in the best of worlds provides a common language for discussion.

Regards, Craig.

10.3 Summary[28]

10.3.1 Summary - Not IT, not Business Processes, but Organizational Culture

"Not IT, not Business Processes, but Organizational Culture," the eighth installment of the Impact of Open Source Software Series, was scheduled on June 13th and posted on June 14th, 2007, by Craig Perue, who serves as the Programme Manager for eLearning@UWI. Thanks Craig!

Craig's posting took the form of a story describing some of the challenges faced at the University of the West Indies[29] while establishing and managing their online learning environment. He described the rationale for moving from a proprietary learning management system to Moodle, other migrations to open source software, and future plans to continue migrating from proprietary applications to Open Source Software (OSS) throughout the software stack. During the posting, Craig touched on the evaluation process, the areas where he thinks his institution delivers value and the role of OSS in creating value for learners, and some of the connections between organizational culture and the use of Free and Libre Open Source Software (FLOSS[30]).

10.3.2 Comments

The comments that followed the posting were about "open source" teaching and open educational resources. Craig reflected on some of the definitions of learning design that were discussed in an earlier posting with James Dalziel, and talked about the conditions at his university that will either support or limit open and free content. He asked for suggestions about business models that will support universities that participate in open source teaching, to which Richard Wyles pointed him to some work that he has been doing with Moodle Networks. Finally, a question was floated about the faculty reaction to opening content at the largest college at UWI.

Thanks again to Craig, Richard Wyles, and all of the other folks who have been reading along. Our next posting will be by Jean-Claude Dauphin, Project Manager, Section for ICTs in Education, Science and

[27] http://tinyurl.com/28tsjk%3E
[28] This content is available online at <http://cnx.org/content/m14750/1.6/>.
[29] http://www.mona.uwi.edu/
[30] http://en.wikipedia.org/wiki/FOSS

Culture,Information Society Division, Communication and Information Sector, UNESCO, on June 27, 2007. The schedule for the series can be found on WikiEducato[31] r.

[31] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 11

UNESCO's Activities in FOSS For Education, Past, Current and Future Activities (Jean-Claude Dauphin)

11.1 Introduction - Jean-Claude Dauphin[1]

11.1.1 Jean-Claude Dauphin - Introduction

Figure 11.1

Jean-Claude Dauphin works at UNESCO HQ, Paris, in the Information Society Division. He has a software developer background and contributes to the development and dissemination of UNESCO information processing tools such as the Open Source Greenstone Digital Library system. He is also in charge of the UNESCO Free and Open Source portal and a member of the team in charge of UNESCO "ICT in Education, Sciences and Culture" activities.

He is involved in activities related to Openness, and has a strong interest in FOSS Education solutions and open educational resources.

[1] This content is available online at <http://cnx.org/content/m14756/1.3/>.

11.2 UNESCO's Activities in FOSS For Education, Past, Current and Future Activities[2]

NOTE: Author - Jean-Claude Dauphin, "UNESCO's Activities in FOSS For Education, Past, Current and Future Activities". Originally submitted June 27th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

The posting has two parts: the first part describes the past and current UNESCO FOSS activities and the second part suggests a new activity aimed at building an integrated FOSS Education solution targeting universities and that UNESCO may wish to initiate.

11.2.1 I. Brief Summary of UNESCO's activities in FOSS For Education

1. UNESCO[3] , the United Nations Educational, Scientific and Cultural Organization, promotes international cooperation and dissemination of knowledge in the field of education, sciences, culture and communication. Therefore the organization recognises that community approaches to software development in general, and FOSS[4] in particular, have a very significant role to play. There are a number of activities undertaken by UNESCO in support to FOSS.
2. Free & Open Source Software Portal[5] - The UNESCO Free and Open Source Software Portal was developed and published in November 2001. It is maintained by the Information Society Division and provides a one-stop access point to reference documents on the FOSS movements, as well as to websites hosting the most popular and useful FOSS packages in UNESCO's fields of competence. The portal also mirrors the Free Software Directory[6] , a joint project of UNESCO and FSF that catalogues useful free software that runs under free operating systems — particularly the GNU operating system and its GNU/Linux variants.
3. The Greenstone Digital Library[7] (GSDL) - UNESCO has produced with the [8] New Zealand Digital Library Project[9] (NZDL) of the University of Waikato (New Zealand) and the Human Info NGO (Antwerp) a multi-lingual version of the Free and Open Source Greenstone Digital Library software suite. It is expected that the Greenstone software package will enable educational, scientific and cultural institutions worldwide to build and share compatible digital libraries of open access and public domain information. UNESCO makes available free of charge CD-ROMs containing Greenstone 2.70, documentation available in four "core" languages (English, French, Spanish, Russian) and documented examples of digital libraries and associated software. A feasibility study conducted by UNESCO suggested that the open source GSDL, associated with appropriate training and documentation, could constitute a unique resource in the implementation of digital libraries for Africa.
4. UNESCO assisted in the deployment of an open-source Learning Management System (LMS) at the Arab Open University in Bahrain, which was further replicated in Jordan and Saudi Arabia.
5. Together with UNDP[10] , UNESCO also organised a consultative meeting of specialists to assess the needs of developing countries in terms of FOSS and on modalities to pursue an FOSS initiative for developing countries with special focus for Africa.
6. UNESCO has partnerships with FSF, the Free and Open Source Software Foundation for Africa[11] (FOSSFA) and various FOSS-active non-governmental organisations (NGOs) and is participating to the Latin American and Caribbean Conference on Free Software Development and Use (LACFREE).

[2] This content is available online at <http://cnx.org/content/m14757/1.5/>.
[3] http://portal.unesco.org/en/ev.php-URL_ID=3328&URL_DO=DO_TOPIC&URL_SECTION=201.html
[4] http://en.wikipedia.org/wiki/FOSS
[5] http://www.unesco.org/webworld/portal_freesoft
[6] http://fsd.unesco.org/directory/
[7] http://www.greenstone.org/
[8] http://nzdl.sadl.uleth.ca/cgi-bin/library
[9] http://nzdl.sadl.uleth.ca/cgi-bin/library
[10] http://www.undp.org/
[11] http://www.fossfa.net/fossfa/front-page

In addition UNESCO is informally collaborating with FAO, UNEP, UNDP and UNCTAD in promoting FOSS.

7. Other activities undertaken by UNESCO in support of FOSS are: development, distribution and translation of UNESCO FOSS software (CDS/ISIS – database software[12] , IDAMS – statistical software[13]).
8. Two discussion forums organized by UNESCO IIEP[14] have focused on the related issues of Free and Open Source Software (FOSS) for e-learning (June 2004) and Open Educational Resources (OER): open content for higher education (October/November 2005). The FOSS and OER groups have continued to interact on a more informal basis as international Communities of Interest.
9. The Discussion forum on Free and Open Source Software (FOSS) for Open Educational Resources organized by IIEP/UNESCO took place from 11 September to 6 October 2006. The main outcomes were the elaboration of a list of FOSS tools for OER development, management and dissemination, and the creation of a wiki collaboration space dedicated to the UNESCO IIEP[15] Community of Interest on Open Educational Resources.
10. An Internet discussion forum aimed at discussing the OECD study on Open Educational Resources (OER) was held from 13 November to 1 December 2006.
11. Documentary on "Software for development[16] : Documentary and Case Studies" - UNESCO contributed financially to this activity implemented by the UNDP Asia-Pacific Development Information Programme's (UNDP-APDIP) International Open Source Network[17] (IOSN) initiative, which aims to promote the choice of FOSS as affordable (yet effective) solutions for developing countries in the Asia-Pacific region.

11.2.2 II. UNESCO Activities envisaged and related to FOSS for Education FOSS Education Solutions

11.2.2.1 1. Needs Analysis

There is a strong demand for Free and Open Source Software solutions based upon open standards from developing and emerging countries who want to initiate secondary school and/or higher education computerization programs, as well as to computerize public administration. The ability to customize a solution to the special needs of a country, and any school or university in the country as well as using open standards, are the key advantages of providing open source solutions. It is usually quite easy to find FOSS applications that can solve a specific isolated problem such as an LMS or CMS, but most of the time a global solution is needed and there is really a lack of integrated FOSS solutions for education.

11.2.2.2 2. Vision

In view of these needs, UNESCO would like to explore the possibility of producing a complete FOSS Education Solution for higher education that would integrate a stack of software tools, guidelines, and good documentation.

A complete integrated FOSS Education Solution should be a technical roadmap with a stack of software tools and that could integrate for example:

1. A Generic Integration Engine or Framework that:
   - Should solve the current Student Information System (SIS) problem
   - Add value by integrating isolated software tools and providing bridges

[12] http://www.unesco.org/isis
[13] http://www.unesco.org/idams
[14] http://www.unesco.org/iiep/
[15] http://oerwiki.iiep-unesco.org/
[16] http://portal.unesco.org/ci/en/ev.php-URL_ID=23858&URL_DO=DO_TOPIC&URL_SECTION=201.html
[17] http://www.iosn.net/

- Allow flexibility to add more applications to the stack
- Provide a seamless Education IT environment

2. A Web Single SignOn (SSO) across or within organizational boundaries. It allows sites to make informed authorization decisions for individual access of protected online resources in a privacy-preserving manner (Shibboleth — http://shibboleth.internet2.edu/[18])
3. The Moodle Core
   - Course Management (search, create/edit/delete, classify, event management, etc ...
   - User Management (add/edit/delete, authenticate, enroll, grouping, etc...)
   - Configuration Management (general configuration, site configuration, language, module, etc...)
   - Teacher & Student functions (register, logon, teaching, learning, finding resources, etc...
4. The Education Management System (EMS)
5. Guidelines and requirements for flexible IT Infrastructure
6. Guidelines for planning, budgeting and implementing
7. Step-by-step guide to implementing open distance learning.

11.2.2.3 3. Tentatively Skeleton for Project Management

Projects are usually divided into eight phases. Each phase has an objective, associated documents and deliverables. Phase 1: The first phase intends to produce a Requirements Evaluation and Project Proposal document.

Areas to be addressed include:

- Fundamental Problem to be solved
- Tasks/functions the FOSS Education Solution will perform
- Benefits/Savings/Cost Justification
- Economic
- Contribution to EFA goals and objectives
- Quality
- Performance Requirements
- Security
- Compatibility/Migration
- Product integration
- Packaging
- Related/Dependent Projects; Other Dependencies

The project proposal document should set the background, define the fundamental concepts, compare and evaluate the alternate FOSS Education solutions in terms of functionality and compatibility, and should be accompanied by a thoughtful analysis of the current isolated FOSS Education Solutions and the desired integrated FOSS solution. It should also identify the missing components if any.

- Phase 2: Planning Phase
- Phase 3: Detailed Design Phase
- Phase 4: Construction Phase
- Phase 5: Testing Phase
- Phase 6: Implementation Phase
- Phase 7: User Support Phase
- Phase 8: Completion Phase

Please note that this is a first attempt to design a project proposal for building a FOSS Education Solution targeting universities. It needs further improvement and elaboration. It could also be envisaged to build a FOSS Education Solution for secondary education (or K12).

[18] http://shibboleth.internet2.edu/

11.2.2.4 Responses

6 Responses to "FLOSS, OER, Equality and Digital Inclusion"

11.2.2.4.1 1. Ken Udas – June 28th, 2007 at 4:38 am

Jean-Claude, I want to start by saying that I find your posting very exciting. UNESCO is clearly committed to FOSS and has developed an impressive portfolio of interrelated activities in support of FOSS in education. It is also obvious that UNESCO is committed to a watershed vision of global importance. I have a number of questions, and I am trying to work out where to start. So, I have decided to start at the beginning.

In your needs analysis statement you state that

> *There is a strong demand for Free and Open Source Software solutions based upon open standards from developing and emerging countries who want to initiate secondary school and/or higher education computerization programs, as well as to computerize public administration.*

Could you expand a little further on this? That is, what needs are driving the demand for introducing computer technology into education and government?

Thanks Ken

11.2.2.4.2 2. Jean-Claude Dauphin - June 28th, 2007 at 10:09 am

Thanks Ken for your comment.

We have identified different types of needs for introducing computer technology into education:

- The need to introduce computer technology into school and university administrations to improve their overall performance (teaching, administration, student information management, etc). This would also increase their effectiveness and efficiency and thus making a positive impact on the education system in general
- The need to use computer technology for implementing open distance learning (HE).The need to introduce computer technology in schools he need to introduce computer technology in schools
  - so that all students become familiar with it at school as a tool for everyday use, thus "demystifying" it for them. (social role, computer literacy)
  - for better access to the job market. Basic teaching of computer applications or programming is providing skills vital for employment in the information technology society (vocational role)
  - as a pedagogical help – computer technology assists the teaching-learning process and enhance the instruction of traditional subjects in the curriculum. (pedagogical role)

Ministries of education and other actors in the policy-making process will base decisions to introduce computer technologies into the education sector on one or more of these issues, which can be seen to overlap in some respects.

The introduction of computer technology is a very expensive resource for schools even in industrialised countries where the necessary infrastructure for their installation is in place. The price of hardware although constantly decreasing remains high for school budgets as does software.

The use of Free and Open Source Software offers a cost effective solution as regard the software part. Furthermore, the ability to customize a solution to the special needs of a country, and any school or university in the country is very important.

Free and Open source software (FOSS) has become mainstream and has been recognized in many cases as a valid alternative to corresponding closed source software. Its availability contributes to widen the choice of software and avoid vendor lock-in by fostering competition on the market.

As regard the use of computer technology into public administrations , there is a need to foster the interoperability of their diverse ICT systems by requiring the use of open standards and open file formats irrespective of their choice of software. They should also ensure that the encoding of data guarantees the permanence of electronic public records and is not tied to a particular software provider.

Best wishes, Jean-Claude

11.2.2.4.3 3. Ken Udas - July 1st, 2007 at 8:54 am

Jean-Claude, Hello, I would like to follow-up a little more on the connections between the needs that you identified and the use of FOSS. Different FOSS applications and their communities have different characteristics. What do you envision are some of the important characteristics of FOSS applications that will be used to meet the needs that you identified within the context of the project you have described, and what do you see as the role of UNESCO?

Thanks, Ken

11.2.2.4.4 4. Jean-Claude Dauphin - July 2nd, 2007 at 11:09 am

Hi Ken, I agree that the needs identified in my previous post address different communities as it would also concern different units inside UNESCO.

As a first step we could envisage to undertake a separate detailed needs analysis for each one, i.e. for:

1. Use of ICTs for school and university administration
2. Use of ICTs for ODL
3. Computer literacy (Mapping of FOSS applications with the Open Source ICDL such as the COL Computer Navigator Certificate)
4. Basic teaching of computer applications or programming
5. Use of ICT as a pedagogical help (UNESCO ICT Competency Standards for Teachers, structure of a Training Syllabus).

The detailed needs analysis would:

1. determine the type of applications currently in use, determine system requirements and the future modules needed;
2. investigate the existing FOSS applications that might be used;
3. establish cooperative links with existing FOSS projects;
4. determine the potential partners;
5. undertake limited evaluation of selected FOSS applications that might be of use;
6. report on finding, make information available on FOSS applications that can be used and make recommendations on the next phase to undertake.

This is a huge work, however, UNESCO already initiated some activities related to the five items above:

- Collaboration with COL for producing a UNESCO/COL Computer Navigator Certificate based upon FOSS (item 3).
- Elaboration of a generic Training Syllabus called "UNESCO ICT Competency Standards for Teachers". i.e. the training syllabus focus on the concepts and is independent from the software applications to be used that may be FOSS or proprietary.(item 5). We could probably go one step further by doing a mapping exercise that would associate a FOSS application to each item of the syllabus.
- An activity aimed at producing an "Open Distance Learning (ODL) Project Binder / Toolkit", that is based upon FOSS and OER was also started. (item 2).

In the future, it may be envisaged to undertake an activity for (item 1) which was in fact my suggestion in the first posting.

UNESCO will also continue to facilitate awareness development and capacity building in Member States through the UNESCO FOSS Portal.

Best wishes, Jean-Claude

11.2.2.4.5 5. Ken Udas - July 3rd, 2007 at 4:44 am

Jean-Claude, Thanks again, it is good to get a sense for the project you are envisioning and an appreciation for the work that will go into it. So, as you are thinking about this endeavor, what would you hope to be its impact on education in developing countries? I know that this is an overly broad question, but I would like to get an idea of how the FOSS Education Solution will improve education. Based on your posting and comments I understand that some of the important qualities include:

- Economic feasibility (affordability)
- Reduced complexity (coherent framework, open standards)
- Increased functionality (coherent framework, open standards, and increased number of tools in stack)
- Increased usefulness through flexibility (customizability, localization)
- Please feel free to add to this list or correct any misinterpretations.

These strike me also as very important qualities. When achieved, what differences do you see the FOSS Education Solution having, for example, in higher education in some key UNESCO priority areas?

If that's not a big enough question, I am also wondering also if you have a general sense of what a few of the big dependencies are that have to be considered and addressed to realize the potential impact of the FOSS Education Solution? That is, recognizing that education is embedded in a complex environment, what are some of the challenges, technological and non-technological, that need to be considered and addressed that would enhance the impact of a FOSS Education Solution? Or, put in the negative, what are some of the challenges that could reduce the impact if left unaddressed?

Cheers, Ken

11.2.2.4.6 6. Jean-Claude Dauphin - July 4th, 2007 at 10:59 am

Hi Ken, Thanks Ken for all these questions, I will try to answer below:

> *Thanks again, it is good to get a sense for the project you are envisioning and an appreciation for the work that will go into it. So, as you are thinking about this endeavor, what would you hope to be its impact on education in developing countries?*

Many developing countries focus on basic education and limit their financial support for higher education because this is not their priority. However, there is a growing demand for higher education in many universities.

E-learning is considered as a less expensive model compared to conventional face-to-face or distance education. The learning management systems (LMS) – a software designed to provide a range of administrative and pedagogic services related to formal education settings (e.g. enrollment data, access to electronic course materials, faculty/student interaction, assessment) – appears to be one of the main component of e-learning development in tertiary education worldwide. FOSS Education Solution would provide the sustainable e-learning software components for free. But of course this is only one part of the overall HE picture. Please note that the FOSS model is sustainable because it avoids vendor lock-in and the source code is always available even if the company or author(s) disappears.

> *I know that this is an overly broad question, but I would like to get an idea of how the FOSS Education Solution will improve education.*

FOSS Education Solution will help universities and other tertiary institutions to introduce the use of ICTs and most particularly a sustainable e-learning environment at low cost. It will then be available for wider audiences of students, at different levels, and in different ways. It will support effective teaching and learning in all levels of education, as well as for in-service teacher education

> *Based on your posting and comments I understand that some of the important qualities include:*

- Economic feasibility (affordability)

- Reduced complexity (coherent framework, open standards)

- Increased functionality (coherent framework, open standards, and increased

number of tools in stack)

- Increased usefulness through flexibility (customizability, localization)

These strike me also as very important qualities. When achieved, what differences do you see the FOSS Education Solution having, for example, in higher education in some key UNESCO priority areas?

Taking into consideration the priority areas defined in UNESCO Draft Programme and Budget for 2008–2009, it is expected that FOSS Education Solution would have an impact on:

- Establishing new approaches to knowledge dissemination and utilization, particularly through new models of Open and Distance Learning (ODL) for life-long learning.
- Fostering the use of ICTs in teaching and learning, including the establishment of standards to strengthen ICT competences for teachers and the development of strategies and best practices for integrating free and open sources software and open education resources in learning processes.
- The implementation of WSIS Action Line C7 "E-learning".

If that's not a big enough question, I am also wondering also if you have a general sense of what a few of the big dependencies are that have to be considered and addressed to realize the potential impact of the FOSS Education Solution?

A FOSS Education Solution is dependent from a robust IT infrastructure - Virtual Universities cannot afford to be offline. Institutions must be prepared to spend money to establish a reliable hardware setup, and continue to support the ongoing costs of repairs and updates to equipment.

It is also dependent from the availability of courseware content, i.e. Open Educational Resources. The solution should include flexible courseware design tools that should be easily understood by a fairly non-technical audience.

University staff should acquire the necessary skills for using the tools provided in FOSS Education Solution.

That is, recognizing that education is embedded in a complex environment, what are some of the challenges, technological and non-technological, that need to be considered and addressed that would enhance the impact of a FOSS Education Solution.

I think that a hands on approach should be used. Very good documentation that includes planning, guidelines and best practices documents should be part of the solution.

The challenges will also be about producing new releases and upgrading existing implementations. Creating a strong community of users and partnership networking would be important to enhance the impact of a FOSS Education Solution.

Best wishes, Jean-Claude

11.3 Summary[19]

11.3.1 Summary - UNESCO's Activities in FOSS For Education, Past, Current and Future Activities

UNESCO's Activities in FOSS For Education, Past, Current and Future Activities," the ninth installment of the Impact of Open Source Software Series, was posted on June 27th, 2007, by Jean-Claude Dauphin of UNESCO's Information and Society Division. Thanks Jean-Claude!

Jean-Claude's posting was composed of two major sections. The first was an outline of the impressive portfolio of Free and Open Source Software (FOSS) and Open Educational Resources (OER) related projects that UNESCO leads or supports. In addition to providing a little background on UNESCO and its interest in FOSS, Jean-Claude also highlighted projects and activities ranging from a FOSS portal, to support of and participation in OSS projects, and community development and dissemination activities.

The second section was an outline for a most impressive future project. Jean-Claude outlined a "FOSS for Education" project that will result in a FOSS infrastructure designed to meet the needs of a university operating in developing regions. He provides a needs analysis, vision, rationale, and a skeletal project outline. His treatment of this project highlights the significant opportunity and also the magnitude of the work to be done.

11.3.2 Comments

The following comments and responses primarily concentrated on clarifying needs, the role of UNESCO, and some of the challenges and dependencies for the success application of the project. Jean-Claude pointed out where FOSS can best be leveraged in education and government in developing countries and then dug into some of the issues around the economics and accessibility of online education and the role that FOSS can play in relieving constraints. I have an additional follow-up question about the role of customization to support local needs, which I will post soon.

Thanks again to Jean-Claude, for his visionary post and excellent responses to all questions, and to all of the other folks who have been reading along.

[19] This content is available online at <http://cnx.org/content/m14758/1.3/>.

Chapter 12

Open Source Software and the User Experience in Higher Education (Mara Hancock)

12.1 Introduction - Mara Hancock[1]

12.1.1 Mara Hancock - Introduction

Figure 12.1

Mara Hancock serves as Associate Director for Educational Technology Services at UC Berkeley, and oversees the Learning Systems Group (LSG). She manages an extremely talented team of educational technologists, software programmers and architects, User Experience Designers, and training and support folks. We work with UC Berkeley faculty, students, and staff, as well as other educational technology professionals around the world to develop, adopt, and support collaboration and learning systems to enhance the teaching and learning experience.

[1] This content is available online at <http://cnx.org/content/m14761/1.2/>.

12.2 Open Source Software and the User Experience in Higher Education[2]

NOTE: Author - Mara Hancock, "Open Source Software and the User Experience in Higher Education". Originally submitted July 11th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

12.2.1 Open Source Software and the User Experience in Higher Education

Wednesday, July 11th, 2007 by Mara Hancock

Open source software has moved up the technology stack. We are now seeing consumer software such as Content Management, Learning Management, Portals, and other Web 2.0 tools all emerging directly out of open and community source efforts which provide unique opportunities for higher education to address the unique needs of their academic constituencies. But do we have what it takes to do this successfully? Do we have the right skills in our development shops? Can we bridge the divide created by distributed development teams to make for meaningful and seamless applications that will meet the work flows of all our users? How does the fact that we are in a teaching and learning environment impact that work and the methods we apply? This blog entry may be destined to ask more questions than I can answer! I hope that at the very least it might help to instigate a healthy dialog, illicit some emerging best practices from open and community source communities and from our — often less visible — local environments.

Let me enter into this conversation by way of a brief introduction to the work that has influenced my thinking in this area.

UC Berkeley has been actively working on Sakai[3] since early 2005, when it was solely a grant and University funded project. We continue to be actively involved as it transitions to a full-fledged open source foundation model. I have been on the Sakai board of directors through this time. We are also a core member on the Fluid Project[4] , recently funded by the Mellon Foundation[5] , along with the University of Toronto (PI), Cambridge University, York University, UBC, and experts in usability, accessibility, and UI design across the globe. This community source project was created to focus on addressing the precarious value[6] of UI and accessibility design in community and open source development work. In addition, UC Berkeley will be a core partner on the upcoming Kuali Student Project[7] , which, as a project, has boldly declared a determination to be user-centered from day one. As you can see, as an organization UC Berkeley is deeply embedded in – and increasingly reliant on – open source applications, and in particular the community source projects, to deliver critical and integral functionality to our student and instructors every day. If these users – the heart and soul of our university's endeavors – cannot use these tools to successfully fulfill their goals we are not doing our jobs.

Most of the findings in this entry are from personal reflection from my experience with the above community source projects, talking with colleagues involved in a variety of open source projects, and blogs and writing from across the web.

12.2.2 Delightful Software in Community & Open Source Software

When I first heard my fellow Sakai board member, CIO Brad Wheeler from Indiana University, refer to "user delight" as a strategic goal, I was slightly uncomfortable. The term "usability" is so much more utilitarian and sets a nice solid, non-evocative baseline. Don't get me wrong, I want the BEST user experience possible, but "delight?" So I ask you, why not "user delight?" In fact, shouldn't usable software simply be the bottom

[2] This content is available online at <http://cnx.org/content/m14762/1.4/>.
[3] http://sakaiproject.org/
[4] http://fluidproject.org/
[5] http://mellon.org),/
[6] http://www.jstor.org/view/00031224/di974191/97p1125w/0
[7] http://swik.net/Kuali

line? If we are going to be in the software development business, shouldn't we be aiming to, at the very least, satisfy, and even better, create an experience that is welcomed — even sought after! Wouldn't that be success?! In fact, when I step beyond my prudishness and my fear of failure, I do agree with Brad. Community and open source communities, where higher ed IT shops are striving to create superior software "by academia and for academia" are ideally positioned (at least theoretically) to achieve user delight. However, in order to do this we need to carefully examine the skills and resources and sometimes-unusual alliances that may be required to be successful in achieving this goal.

To begin, let's be clear, poor usability in software applications is not relegated solely to the domain of open source. Many a commercial product has been slotted for demise – often prior to launch — because of poor usability. Indeed, as evidenced in many a UI listserv, UI design faces challenges in communicating its value across the spectrum of workplaces (spend a day or so on the IXDA[8] list to observe this). Clearly usability problems are not the sole reason for what is reportedly an over 70% failure rate of software projects. But I would hazard to guess that if you are willing to broadly define usability as "a useful and satisfied user experience (UX)," and not just solely issues related to interface design, that a large portion of these failures are likely to indeed be tracked back to usability. While many of the symptoms experienced by commercial and open source development teams are similar, I expect that the solutions applied will often, and necessarily, be different in order to accommodate the cultural and organizational differences between the environments, as reflected in Eric S. Raymond's "The Cathedral and the Bazaar[9] ."

I have attempted to outline some of the challenges to the development of a delightful user experience in OSS and Community Source products from the perspective of those projects coming out of higher education for higher education. Many of these issues are interlacing and multi-layered and I don't expect to create an all encompassing list, but to at least capture a general survey of some of the salient points.

12.2.3 Distributed Development Teams — The Good, the Bad, and the Inevitable

One of the huge benefits of developing open source products is that development can happen anywhere — and hopefully it does! In order to enable these distributed development teams to deliver in a timely manner, it is often necessary to create frameworks that allow the creation an implementation of loosely coupled tools. From many perspectives, this is a good thing to do: organizationally it allows open source teams to work efficiently (eliminate the coordination costs), and architecturally it provides much greater flexibility.

However, distributed teams introduce several UX challenges. Requirements developed in the silo of a remote team tend to focus on the requirements and business rules as expressed in that environment. For example, UC Berkeley might tend toward defining the business rules for the Gradebook based upon our campus policies rather than doing the extra work required to generalize across a wide range of institutions and global cultures. This behavior makes good local sense since as institutions we are driven by enlightened self-interest and need to ensure that we meet the needs of our local users with our local resources. However, producing a tool that only creates interactions based on the primacy of UC Berkeley's business rules often effectively lowers the ability for other schools to leverage the tools and increases the total cost of adoption.

Another UX challenge is that working in tool silos makes it difficult to create a coherent, "holistic" environment for the end-user. Many user goals are based on work flows that cut across tool sets. This has been an oft-cited usability problem within Sakai. Users don't think within the same categories and silos as the development teams work.

12.2.4 A Code-Centric Culture

Open source software has historically been developed for and by developers. It is a meritocracy where individuals gain respect through their direct contributions to the end product. This creates an intrinsic reward system for the developers whereby respect and privileges are accorded to those who do things like "play well with others," provide good feedback and assistance, but most importantly contribute good, solid, workable code.

[8] http://beta.ixda.org/
[9] http://www.catb.org/~esr/writings/cathedral-bazaar/

UI Designers generally don't produce code. UI Designer Rashmi Sinha talks about this issue in her blog[10]
,

> *"...The problem of currency: In any system people exchange goods and services using some type of currency. The currency could be any arbitrary thing - it could be fish, cows, or massages. In the open source world, it happens to be code. The problem is that usability professionals generally do not write code."*

While quite successful for projects such as Linux and Apache, this is problematic for end-user applications that are used by the faculty and students in higher ed to support their daily scholarly, teaching, and learning activities. Developers can no longer design for themselves; they have to design for users whose goals are nothing like their own (a good read on this is Alan Cooper's book, "The Inmates are running the Asylum[11] "). Developers need UI Designers and Instructional designers to help them translate instructional, scholarly goals into specifications and prototypes. However, in an environment where code is king, what rewards are available for individuals with these other critical skills to participate? Do we even have the right ecosystem in which for them to engage them in the first place?

12.2.5 The Right People for the Right Job

As IT managers, we are probably the first to advocate for the right tool for the right job. However, we continually seem to hire a relative monoculture of IT professionals, thinking that if we just add another programmer all our problems will be solved! After talking with many IT managers across higher ed, it appears that UI design (whether it be User Research, Interaction Design, Visual Design, or Information Architecture) is rarely a formal part of their cycle or designers a regular part of the team. If UI Designers are part of the team, they are often so sparse a resource as to absolutely ensure that they won't have enough time to get engaged early enough or long enough. This means that the few teams that are able to contribute UI designers to an open source effort, have a hard time being impactful. This is made worse by the fact that designers are often embedded in distributed teams and not looking across the product, inhibiting a holistic user-centered approach.

This inevitably creates a gap between expectations and deliverables and creates a tension that is exacerbated by the lack of recognition for UI deliverables that arrive unaccompanied by code.

Another challenge in creating applications for academia is that many of the user goals are embedded in pedagogical methods that may be discipline specific or not expressed in a generalizable way. Instructional designers and faculty are rarely part of a development team. In the higher education community source environment we have an opportunity to remedy this. It may require reaching across local organizational divides to ensure that the user and instructional goals are adequately being met: Often, instructors don't speak the language of technology, so the instructional designer can help translate, generalize, and communicate their needs. In turn, the instructional designer often doesn't speak the language of the application programmer, and the UI designer can help translate and represent their needs within the design and work flow of the application for the developers. This diagram[12] attempts to express the relationship between these different areas of expertise.

[10] http://www.rashmisinha.com/archives/05_04/open-source.html

[11] http://books.google.com/books?id=04cFCVXC_AUC&dq=the+inmates+are+running+the+asylum&pg=PP1&ots=jeBfU2q-lQ&sig=igEcsctX-8H8pXu0n-lWNeM8NBM&prev=http://www.google.com/search?q=the+inmates+are+running+the+asylum&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&sa=X&oi=print&ct=title

[12] http://download.neooffice.org/neojava/welcome.php?product=NeoOffice%202.1&host=superg.local.&buildmachine=pluby:guibomacmini.loca

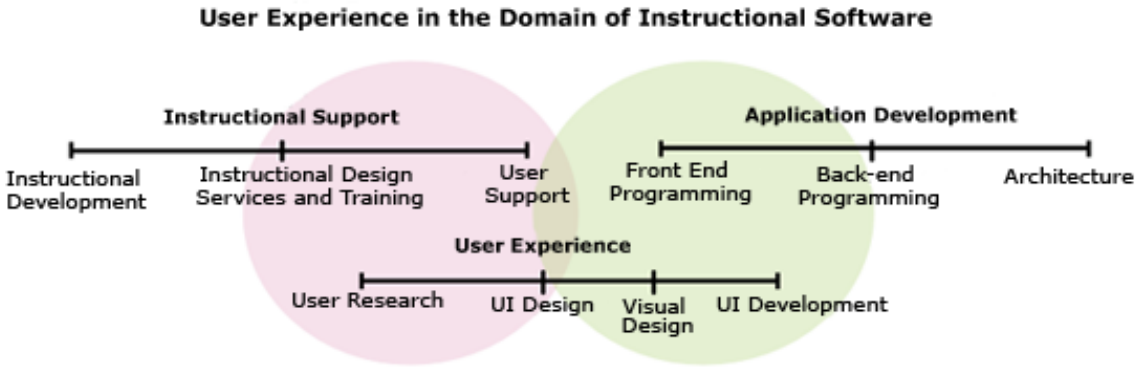

Figure 12.2

The transparency of open source projects in higher education helps development and instructional support teams engage faculty and students in the process of creating the online environment that they need. We are uniquely situated smack dab in the middle of our own usability lab. There are few commercial or open source environments that can count themselves as this lucky. One of the biggest barriers to implementing a user centered design process that I have heard from UI Designers working in the private sector is their inability to gain consistent access to their users. Let's make the most of our opportunity!

12.2.6 Flexibility of OSS

One of the largest benefits of open source software can also be a sizable UX challenge. The ability to easily localize and change the code means that often development teams and users don't have a common or consistent experience and it is difficult to conduct user testing. On the one hand, proprietary products with closed code won't let us make the experience more meaningful to our users, but on the other, with open source we have the unique opportunity to make a mess of it! An instance of uPortal at UBC may be completely different from uPortal at Yale. So how do we conduct usability tests? This issue is something that the Fluid Project[13] is exploring now as it prepares for its first round of "user experience walk-throughs" on Sakai, Moodle, and uPortal[14] . They have designed a set of protocols that are already being utilized by other community source projects.

12.2.7 User-Friendly Architectures and Technologies

Users of Open Source software are not only the end-users, they are also the designers, administrators, and implementation teams (hence documentation is also a huge barrier in OSS). When designing open source applications or platforms, making the software usable for these users is also important. In the case if UI designers, choosing presentation layer frameworks which are compatible with standard mark-up languages is important. The Fluid Project is working across projects, attempting to identify user interactions that cross academic software and develop accessible open source UI components that will be mapped to design patterns (http://developer.yahoo.com/ypatterns/[15] , http://designinginterfaces.com)[16] . For site administrators and

[13] http://fluidproject.org/
[14] http://wiki.fluidproject.org/x/RwAF
[15] http://developer.yahoo.com/ypatterns/
[16] http://designinginterfaces.com/

integration teams, documentation and set-up wizards will be key. Design patterns for these activities should be able to also be mapped to reusable components and documentation templates.

While these issues only represent a subset of the details surrounding the challenges to creating delightful academic software, I think they highlight some of the opportunity as well. I am optimistic that through the technical, UI, and advocacy work of the Fluid Project and participating community and open source projects, we will be able to impact change both institutionally and within the open source organizations. I expect and hope that through forums such as Terra Incognita there will be more occasions for those of us in IT management, those engaged in supporting the teaching and learning endeavor, UI design, and programming across our campuses to find ways to bridge the divides both organizationally and culturally, and to collaborate in creating user-delightful open source software. You can find links to a number of related articles on UI design and open source usability on my del.icio.us site, tagged as "OSUI" (Open Source UI). Happy reading!

12.2.7.1 Comments

8 Responses to "Open Source Software and the User Experience in Higher Education"

12.2.7.1.1 1. mfeldstein - July 11th, 2007 at 4:21 pm

Great piece, Mara. To my mind, this point is particularly critical:

> *"Another challenge in creating applications for academia is that many of the user goals are embedded in pedagogical methods that may be discipline specific or not expressed in a generalizable way. Instructional designers and faculty are rarely part of a development team. In the higher education community source environment we have an opportunity to remedy this. It may require reaching across local organizational divides to ensure that the user and instructional goals are adequately being met: Often, instructors don't speak the language of technology, so the instructional designer can help translate, generalize, and communicate their needs. In turn, the instructional designer often doesn't speak the language of the application programmer, and the UI designer can help translate and represent their needs within the design and work flow of the application for the developers."*

Programmers are from Mars; teachers are from Venus.

Given the distributed nature of Open Source communities, what realistic, low-barrier-to-entry methods can we employ to narrow the communication gap?

12.2.7.1.2 2. Mara Hancock - July 12th, 2007 at 10:55 am

Hi Michael. You definitely picked up on what I consider to be an interesting challenge and perhaps the greatest opportunity for improving user experience. I am not sure I have hit on the perfect formula for this, but I do think the low barrier-to-entry solutions have to begin at home in our local environments. And that means that those of us in leadership positions have to start with evaluating the skills we have on board currently and do a gap analysis on the ecosystem. At UC Berkeley we have been lucky enough to start with some instructional development staff, and we have been able to grow that and build stronger partnerships with other campus units in this domain as well (Library, OED, Grad Instruction). However, as a campus we were completely deficient in the UI side of the house (also Project Mgmt., but that is another article and frankly since engaging in community source projects I am beginning to think we all need a new breed of agile PMs...).

This may be controversial, but I don't think the right way to approach this is through the traditional faculty committee advisory group. This can get us trapped in serving individual wish lists. I think we can learn a lot from the needs assessment and field work from the User Experience field and find a way to apply that both at a project level and a slightly higher level.

One of our challenges at a large university is visibility. We are often addressing the majority need and hear from the minority. I know there is a way to engage faculty in the community source process that may also help them move beyond their silo. I truly believe it matches the values of higher education, and we staff need to find ways of communicating that better. The recent SakaiCal symposium that was hosted down at Claremont McKenna College had a very nice mix of faculty, librarians, technologists. It was well balanced. That gave me hope, but it still tended to slip into a "what are you going to do for me" tone. I think UX folks can become the translators and bridge that gap. The problem is that we don't have enough of them. We haven't yet created the balanced ecosystem.

So as usual, change starts at home.

12.2.7.1.3 3. Ken Udas - July 14th, 2007 at 3:13 pm

Mara & Michael, First, great post and comments. While reading through this post what struck me was the fact that at many universities (I am using Penn State World Campus as a reference, but I do not think that we are unique) there is an opportunity for:

- a learning designer, educational technologist, and faculty member to work together and provide insights into the user experience with the learning management and course authoring environment every time a course is developed and refined,
- a student, faculty member, and learning designer to get input on the user experience when a course is taken, and
- general information to be collected continuously on user experience by user support, customer services, and other points of learner and faculty contact.

Much of the work that we do around learning design, development, and "delivery" has a relatively predictable and reliable workflow. How might an OSS project take advantage of all this user contact and predictable workflow to learn about and improve user experience? Note that software designers and developers are not included in our regular work processes. In your opinion, do you believe that there are certain qualities that an OSS project/community will process that will make it better at improving user experience? If so, what do you think some of those qualities might be?

Thanks!

12.2.7.1.4 4. Mara Hancock- July 15th, 2007 at 7:20 pm

Ken, I am not totally clear on your question, but I think you are saying that my assumption about having software designers and developers embedded is not a given and asking whether there is something inherent in OSS itself that will make improving user experience more likely.

One way I think a team that lacks software development and design resource but is rich in learning design can make a difference is to partner with OSS teams working with learning design or LMS tools. UX designers and developers alike need to talk to and observe people who are engaged in these activities to make sure these are expressed adequately prior to any software being developed and that the designers truly understand the users and their end-goals. However, this means managers need to be willing to make time for this to happen, and that means having the ability to express a return on investment. Some institutions and managers seem "get this" in a way that seems like it is in their genes! Others can't see the benefit. Those of us engaged in OSS — especially community source — have to get better at making that case.

In regards to the qualities of open source communities being more or less suited to improving user experience, I will say that my experience will be slanted toward my Sakai and Fluid experience. Using these two projects as a model, I would say that we are uniquely situated to address the user experience because we are embedded with our users, and many of us are users. Therefore, we feel the pain of our own mistakes beyond the market. I think this is also true for many developers of Apache projects or Linux. We are challenged in that many of us haven't hired the designers we need, leaving us in a situation where we can fix the plumbing but the house is an ugly mess (I say that lovingly). We also have the ability to learn from our mistakes and pool resources in a way that a commercial venture can't (without acquisitions or ugly patents).

Did this address your questions at all, or was I way off base?

12.2.7.1.5 5. Ken Udas - July 17th, 2007 at 5:50 am

Mara, Thank you for moving this along. I think that you got the spirit of my question. It was a bit ambiguous. I was trying to make a few points and then ask a question. I'll start with the question first this time.

> *Do you think that there are characteristics possessed by OSS projects and communities that make those projects better at user driven (at least user informed) design and development?*

This question is based on your discussion about a) "Delightful Software," b) the role that UX plays in a "Delightful Experience," and c) some of the observations that you highlight about Code Centric-Culture and your reference to UI Designer Rashmi Sinha.

I was suggesting that many university-based online learning groups do not employ application developers and if they use an OSS application they do not apply substantive resource to code development for the project. I recognize that Sakai might be an exception because of its legacy, but as larger numbers of colleges, universities, and other education providers adopt Sakai, I would assume that this will likely become the case if is it is not already. That said, many online learning groups do have educational technologists, learning designers, graphics and multi-media artists/developers, content developers (frequently faculty), project managers, and other professionals involved with identifying, designing, developing, and teaching courses.

Many online learning groups also have a process in which learner experience is captured through evaluation. This is pretty much the case at Penn State World Campus, and was also true at the Open Polytechnic of New Zealand. In the case of the World Campus we will be developing and revising dozens of courses and delivering & teaching hundreds of courses at any point in time. It would seem to me that the knowledge gathered through the process of designing, developing, authoring, and offering courses, could be well leveraged by an OSS community to enhance UI/UX, which points back to my question. What can OSS projects and communities do to capture this knowledge from application users who will not directly contribute code to a project? This is based on the assumption that the type of knowledge that could be captured and generated through design, development and teaching processes would be useful to user interface design and supporting improved user experience.

I am asking the question above, because it might play into an application evaluation and selection process. OSS projects and communities that are best able to enhance user experience through mechanisms that allow for non-coder engagement might be a software/community selection criteria.

This is an open question. If anybody has experience with other OSS projects or across multiple projects, please chime in with your thoughts on this.

Hmmmm, I am not sure if I cleared or further muddied the waters! Cheers, Ken

12.2.7.1.6 6. Ken Udas - July 18th, 2007 at 3:26 pm

Hello, I wanted to make an observation associated with the challenge of user experience, usability testing, and localization that you identify in the "Flexibility of OSS" section of your post. I think that this relates to Jean-Claude's recent posting, which included a project outline for a FOSS stack to support educational organizations, one of the key requirements identified was the ability to customize/localize across countries and cultures to meet local needs. It seems to meet that the balancing of usability and localization is one of the key challenges while trying to use FOSS to reduced some barriers to online learning globally. This issue seems to be one of the primary goals of the Fluid Project.

> *Fluid Will:*
>
> *Help address the diverse needs represented within education, including needs related to ability, language, culture, discipline and institutional conventions*

Do you have a strategy to achieve this objective and have you had much participation from potential stakeholders (universities, foundations, governments, etc.) in developing regions or NGOs that work in developing regions?

Cheers, Ken

12.2.7.1.7 7. Mara Hancock - July 21st, 2007 at 7:52 pm

Some thoughts on Ken's July 17th posting:

> *Many online learning groups also have a process in which learner experience is captured through evaluation. This is pretty much the case at Penn State World Campus, and was also true at the Open Polytechnic of New Zealand. In the case of the World Campus we will be developing and revising dozens of courses and delivering & teaching hundreds of courses at any point in time. It would seem to me that the knowledge gathered through the process of designing, developing, authoring, and offering courses, could be well leveraged by an OSS community to enhance UI/UX, which points back to my question. What can OSS projects and communities do to capture this knowledge from application users who will not directly contribute code to a project? This is based on the assumption that the type of knowledge that could be captured and generated through design, development and teaching processes would be useful to user interface design and supporting improved user experience.*

So one distinction that is useful is between the evaluation of the teaching and learning experience taking place and the user experience in interacting with the software. These can get blurry sometimes, especially in completely online courses. However, a problem with appropriate online instruction techniques are different than usability problems. I think of usability problems as when the software gets in the way of someone achieving their goals (such as submitting a quiz, sending email to an instructor, tracking their grades, etc.). An ineffective online learning experience might include UI issues such as too much on screen reading, not enough examples or doing, but it is not inherently poor usability.

In higher ed, IF we have the right roles on board, the UI team working on any sort of learning tool absolutely has to engage the team of instructional designers to make effective OSS learning environments. The incentive for Instructional designers is that they influence the direction of the learning environment and they can directly declare success to their faculty who have been asking for these things. Small fixes and successes matter and create a positive reinforcement between UI, ID, and instructors. In a commercial environment, those quick iterations and customizations were either impossible or incredibly far a few in-between releases.

We have IDs and UI folks under the same umbrella (mine!) at UCB. Each release is a discussion (the "bSpace Council") between ID, UI, Development, Operations, and Sponsor (me). We have a rubric that we use to rate potential new tools which ranks user need and support the highest, then usability, then technical and operations. The rubric is a guideline and open for discussion. We consider tools based on user feedback (coming in from the ID and support team), technical improvements, administration needs, and needs from other stakeholders such as the Registrar, Library, and profession schools.

12.2.7.1.8 8. Mara Hancock - July 21st, 2007 at 7:59 pm

Hi Ken, You asked:

> *Fluid Will:*
>
> *Help address the diverse needs represented within education, including needs related to ability, language, culture, discipline and institutional conventions*

Do you have a strategy to achieve this objective and have you had much participation from potential stakeholders (universities, foundations, governments, etc.) in developing regions or NGOs that work in developing regions?

Fluid is an open source project (anyone can participate) and we are embedded in each of the core projects, Sakai, Kuali Student, and uPortal. While each of the core universities that are recipients of the grant are english speaking, we have found that there are many differences in language as well as educational cultures and assumptions. For example, the brits cannot understand the U.S. obsession with grades. We also hope that some of the global members of these various projects will start to join in. The Dutch members of Sakai have shown real interest as well as the South Africans and Australians. At this point we don't have any NGOs engaged that I know of, however I think there is real opportunity to engage them through the open content movement. Jutta Treviranus, the PI on the project, is very engaged on the international specification bodies.

12.3 Summary[17]

12.3.1 Summary - Open Source Software and the User Experience in Higher Education

"Open Source Software and the User Experience in Higher Education," the tenth installment of the Impact of Open Source Software Series, was posted on July 11th, 2007, by Mara Hancock who is with the Educational Technology Services at UC Berkeley. Thanks Mara for a great posting!

In her posting, Mara uses her direct experience with some community source projects and involvement with the Fluid project. She starts off my discussing the nature of usability and user experience, and makes clear that usability is not an issue exclusive to OSS, but OSS presents some fantastic opportunities and some significant challenges. The remainder of Mara's post addresses some of these challenges. The challenges raised (and opportunities) of OSS as they relate to user experience and usability included:

- Distributed Teams: Although it is one of the powerful attributes of OSS, it also has the tendency to result in fragmentation of requirements based on local needs, and the creation of development silos.
- Code-Centric Culture: The currency of value in OSS is code and many usability professionals do not write code.
- Right People for the Right Job: User Interface and pedagogical expertise is not frequently hired into development teams.
- Flexibility of OSS: The flexibility that Open Code provides allows for incremental improvement based on local conditions, but that flexibility can also result in poor and inconstant user interface making testing very challenging.
- User-Friendly Architectures and Technologies: It is critical that an OSS application is friendly to the end user, but it must also be friendly to designers, developments, administrators, and other stakeholders.

To varying degrees, the Fluid project is addressing these challenges. In addition to providing a very engaging post, Mara also provided us with a number of useful links.

12.3.2 Comments

The comments concentrated principally on Mara's insights around the relationships between software developers and lend users including learning designers and teachers. Open Source provides opportunities for better design for usability, but managers have to take advantage of the opportunities by hiring appropriate professionals and then providing time to actually work on usability. Additional questions were raised about

[17] This content is available online at <http://cnx.org/content/m14811/1.2/>.

the characteristics of open source communities that might produced better user experiences based on user engagement in the community. Finally, an observation was made about how the opportunities OSS offers for customization, and the desire for localization among many user groups, challenges usability testing.

Thanks again to Mara, for her engaging post and excellent responses to all questions, and to Michael Feldstein and other folks who have been reading along. Our next posting will be by Dick Moore, who serves as the Director of Technology at Ufi, on July 25, 2007. I am very much looking forward to Dick's post.

Chapter 13

Running a Service Not a System (Dick Moore)

13.1 Dick Moore - Introduction - In-source, out-source, open-source, right-source[1]

13.1.1 Dick Moore - Introduction

Figure 13.1

Dick Moore serves as Director of Technology at Ufi, where he looks after four teams that design, build and maintain learndirect's IT infrastructure. The concept of a 'University for Industry' led to the creation of Ufi, which in turn serves as an umbrella organization supporting learndirect. Learndirect is the world's largest publicly funded e-learning platform with in excess of 2.5 million learners.

13.2 Running a Service is not a System[2]

NOTE: Author - Dick Moore, "In-source, out-source, open-source, right-source". Originally submitted July 25th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

[1] This content is available online at <http://cnx.org/content/m14819/1.1/>.
[2] This content is available online at <http://cnx.org/content/m14838/1.3/>.

13.2.1 Running a Service is Not a System

13.2.1.1 What or Who is Ufi learndirect?

"The concept of a 'University for Industry' led to the creation of Ufi [3] in 1998. The organisation then set-up learndirect, a nationally recognised brand for learning. In six years learndirect[4] has become the largest e-learning network of its kind in the world, and has individualised the delivery of learning to a mass audience through a unique combination of flexibility, accessibility and support."

In this piece I plan to talk a bit about our e-learning platform and the part that open source tools and systems have played in our success.

13.2.1.2 Technical and Service Context

VOLUMES

447,000 learners last year

4,000 concurrent learners at peak

consuming 70 mb/s of bandwidth

99.98% systems availability

The learndirect learner management system (LMS) like most learning management systems is more than a website with lots of content.

Content sites like the BBC or CNN while they have some personalisation, typically present their consumers with a collection of web pages. If they are personalised at all they present their consumers with a sub-set of content according to preferences or tracked activity. Critically, the content itself does not change from consumer to consumer and as a result can be load-balanced across a number of serves or caches and requires relatively little tracking.

Learner management systems such as the learndirect system track a learner's progress through a piece of learning and adapt in response to on-programme formative assessment. Such systems do expect to modify content according to consumer behaviour and as a result the use of multiple content servers only works to an extent. Such systems require a single authoritative data source for each course.

Additionally, consumers visiting a news or similar site have plenty of choice. If the BBC site is slow or not there for whatever reason, there are plenty of other such sites for a consumer to visit.

With web delivered learning, the consumer is intending to engage in a formal learning activity that they have formally enrolled in and in many cases have traveled to one of our learning centres to take their course. There is no other site for them to go to. If the site is slow or closed, then their journey was a waste of time.

For this reason the system must be both available and perform well. It is not enough that a system is available and returns content. If e-learning is to be effective, the medium needs to be as un-intrusive as possible; content has to render without the consumer becoming aware of any wait.

This presents us with a double bind; each user's content is customised and there is a service expectation of 100% availability and responsiveness. In addition, we have issues of large scale and 24 x 7 availability we can see that constructing such a service is a serious web engineering exercise.

If you are not monitoring the service, then you are just running software.

It's never good when the first person to tell you that your service has a problem is one of your consumers. Without appropriate monitoring software this will inevitably be the case, and in all probability they won't tell you immediately.

So, the first key differentiator between a service and a system is Monitoring.

[3] http://www.ufi.com/home/default.asp
[4] http://www.learndirect.co.uk/

13.2.1.3 Choose the right tools.

When our service was first constructed a very expensive piece of software was purchased to perform availability monitoring, however, Mr. Heisenberg was forgotten and the load associated with that particular tool was sufficient to detrimentally impact the system. The tool itself was sold as the usual universal panacea, however, in implementation it was clear that its forte was component monitoring and not service monitoring.

Running a live system with this tool gave us all sorts of problems. The tool required agents on all machines and was really only designed around component availability and even then this was often measured from the wrong place (inside the firewall).

We took a look at the open source offerings available at that time and selected two.

13.2.1.4 Event monitoring

Nagios[5] has won lots of awards. We use it to monitor events from two locations.

- Our DMZ[6] where it looks at all of our components every 90 seconds and critically has thresholds set for Green, Amber and Red. While most components in our large system are duplicated to provide resilience, it's absolutely vital to know when one of your resilient components has failed in order to prevent a systems failure.
- The public Internet. From this location, we can look at the service(s) from the perspective of the end user.

Nagios is used to provide event monitoring. Implementing such a tool is not to be undertaken lightly. Getting the sensitivity correct so as not to cry wolf, and embedding the culture such that when an alert is sent out, the operational staff respond rapidly is, in my opinion, more difficult than installing the system in the first place.

13.2.1.5 Trend and volume monitoring

The second open source monitoring tool we use provides trend monitoring, After looking around we found Cacti[7] .

While Nagios tells us when we have a specific issue/problem, Cacti provides us with the information to understand or diagnose the root cause. In measuring volumes and their trends, Cacti allows us to look across the whole application stack at any point in time and examine critical volumes.

Cacti is used to measure volumes. If a system can return a number, Cacti can capture, store and trend it. These volumes can be business or technical volumes examples of which might include the number of users logged into the system over time or critical system volumes such as bandwidth, disk space, CPU, or Memory usage.

When you want to compare historical volumes or activity at a particular moment in time, Cacti can provide it.

13.2.1.6 Culture and tools

As you might expect from an open source tool set, both of these tools are highly extensible. We have been able to write and adapt agents to interface with them, with the exception of our database monitoring, and we have been able to monitor and trend all our services.

I spoke above about getting the culture right, putting these critical volumes onto big flat screens, making them obvious to everyone in your operations and service team. This was the single most important cultural change we made next to implementing an ITIL service culture.

The real question here is how we've been allowed to put all this instrumentation all over our application. Most government contracts are outsourced, but we chose to in-source our operations and development teams.

[5] http://www.nagios.org/
[6] http://en.wikipedia.org/wiki/Demilitarized_zone_(computing)
[7] http://cacti.net/

13.2.2 In-source, out-source, open-source, right-source

13.2.2.1 It's about your technology strategy?

To understand this we need to talk about technology in a business context. Most organisations have either an implicit or explicit technology strategy. Within our organisation our Technology Strategy provides us with a framework that allows an organisation to make 'good', strategic choices, i.e. Hardware, software, monitoring systems, hosting providers. These choices are deployed within a governance framework to ensure that the business and service models that are dependant on technology can be delivered now and the future.

At the risk of stating the obvious, the selection of technology and service model an organisation chooses can mean the difference between a successful business and one that fails. As a consequence, organisations and IT directors tend to be conservative in there decision making.

At a simplistic level, technology is used for three things within an organisation:

- to run the business
- to change the business
- to innovate

Unless you are a start-up, the bulk of investment and cost is already sunk in running your company. Changing the company IS usually occurs incrementally and takes the form of modifying the status quo. We are left with the shinny innovation tip of the cost iceberg to introduce new ways of doing things.

If we accept some of the above, we can see that technology strategies have considerable inertia, and unless there are some strong external pressures (failure to meet Service levels, company financial pressure, loss of market share), the adoption of new technologies is going to be slow. There is still a lot of COBOL out there!

So if you already don't have a lot of open source in use, introducing it requires overcoming quite a lot of inertia.

As a company we have mandated the use of specific open-source operating systems and applications within our technology strategy where we can see cost and risk reduction. It's worth saying that if our service was totally outsourced then these would not be our choices to make, other than at contracting and its very dangerous form to tell a supplier both what you want and how to do it.

13.2.2.2 In-source, out-source, right-source

The last ten years has seen the trend to out-source IT services and development continue to increase. This should not be a surprise when we consider the risk and cost of getting it wrong. Out-source companies come with the allure of having solved all problems previously and having a large pool of experienced staff and many organisations have significantly reduced the cost and risk of running their IT systems as a result.

Central to a successful out-source contract is a contract and a service description and underpinning set of requirements that are well defined. Good example candidates for out-sourcing are Payroll or Desktop management. In both cases, an organisation can describe what it is that it wants and the amount of change required going into the future can be estimated accurately.

It's in the nature of our-sourced contracts that you describe to the supplier what you want but refrain from telling them how to do it.

If your IT application is the core of what your organisation does (such as the learndirect LMS) and you know you are going to undergo an annual cycle of change then in-sourcing your operations should be considered.

Having in-sourced the learndirect operations, we have seen a significant reduction in cost and have increased our service availability to $> 99.9\%$

13.2.2.3 Open-source

If you have in-sourced your application development or hosting then you have the opportunity to exploit open source tools and applications for competitive or service advantage (are they the same thing?)

Having in-sourced the operations and now the development of our core application, we have put open source technology at the core of our technology strategy.

While we retain Oracle as our database of choice we have adopted a wide range of open source tools, Apache, SQUID, JBOSS, Hybernate, MySQL, Linux, to name but a few.

The advantages are obvious:

- They are standards compliant, or effectively comprise a cross-platform standard in their own right.
- They are robust and open to peer review such that issues and problems are rapidly identified and resolved
- They are often designed and built by practitioners and as such have solutions for real world problems built into them
- They increasingly come with support contracts

13.2.3 Summary

Looking back on what I have written it's a bit rambling, however the key points I want to make are.

- Don't confuse running a Service and running an application. Monitoring and non-functional requirements such as usability, supportability, maintainability, availability make the difference.
- Monitoring and its application is critical in running a service
- Getting a technology strategy that supports the business and recognizes that once started it's often expensive to change.
- In-sourcing /out-sourcing right-sourcing will impact what you have control of.
- Open source tools can be used to run world class infrastructure.

I hope you found something to make you think in this piece. We live in amazing times. The richest person in the world 10 years ago did not have one tenth of the knowledge we now have at our fingertips. Lastly, in the words of my favourite bumper sticker of all time, if you think that education is expensive try ignorance.

Its beholding on me to state that the views expressed in this piece are my own and do not necessarily represent those of my organisation.

13.2.3.1 Comments

7 Responses to "Running a Service Not a System"

13.2.3.1.1 1. Ken Udas - July 26th, 2007 at 4:10 pm

Dick, First, thank you for this post. I am interested is teasing out connections between your use of OSS, technology strategy, and impact on how the Ufi / learndirect supports learners. Referring back to one of your summary points:

> *Getting a technology strategy that supports the business and recognizes that once started it's often expensive to change.*

I am wondering if your use of open source software has influenced your technology strategy formally, and if there is any explicit connection in the formal technology strategy and the organization's strategy involving education services.

Cheers

Ken

13.2.3.1.2 2. Dick Moore - July 29th, 2007 at 5:51 am

Thanks Ken

The except below is taken directly from our Technology Strategy summary

> *"Service Delivery Platform: Use of open source components such as Apache Web Server and Squid Proxy Server have been core to our service from the beginning. Within the last two years, we have migrated from using Sun Solaris to Redhat Enterprise Linux as our delivery platform. This has provided us with a 95% reduction in cost and has proven to be highly reliable."*

We have similar statements for our Development and Database platforms that all state explicitly the use of Open Source technologies.

In the Uk our Office of Government commerce has over the last few years, suggested that 'OPEN SOURCE should be actively considered alongside proprietary alternatives' http://www.ogc.gov.uk/news_2007_4280.asp[8]

It's my contention in the piece above that this it's not possible to mandate open source if you out-source your IT provision.

At Ufi, as a result of in-sourcing, we have been able to embed opensource within our technology strategy for non-utility applications and as a result have seen significant cost reductions and improvements in service reliability.

Cheers, Dick

13.2.3.1.3 3. Ken Udas - July 29th, 2007 at 12:53 pm

Dick, Hello. I have a few questions and I am not sure where to go first. I guess that I would first like to tease out a little more of your thinking around the connection between supporting individual users that expect a unique experience and using open source software. You started your post by illustrating the importance of system reliability and how you and your team ensure this by recasting the notion of running a "system" into running a "service," which is supported by excellent monitoring. The need in your context is derived by the challenges of supporting an environment that a) requires customized experiences (there is no place else to go for your learner is the learndirect platform is down, unlike somebody seeking sports scores or news), b) requires high reliability, and c) supports high volume.

You then point to the advantages of in-sourcing these parts of your infrastructure using open source software. Here is my first assertion. It seems that the "customization" criteria in the above mix is most critical, after all, high volume and high reliability are pretty typical reasons to out source. Is that correct? Through your experience, what advantages does OSS potentially provide that proprietary options do not? And, when you are evaluating OSS options, what are some of the evaluation criteria that you prioritize?

Thanks, Ken

13.2.3.1.4 4. Dick Moore Says - July 30th, 2007 at 3:33 pm

Lots of issues there Ken

> *I would first like to tease out a little more of your thinking around the connection between supporting individual users that expect a unique experience and using open source software*

Hmmm while there is no direct connection, using open source software has allowed us to build highly resilient infrastructures that scale. We have a finance and Management Information system that provides performance data a week in arrears.

Using OSS and commodity hardware has meant that that the system has had 100% uptime over the last two years and we are able to scale horizontally keeping pace with demand (downloads have never taken more than 10 seconds)

[8] http://www.ogc.gov.uk/news_2007_4280.asp

Here is my first assertion. It seems that the "customisation" criteria in the above mix is most critical, after all, high volume and high reliability are pretty typical reasons to out source.

It's not the customised end user experience that makes in-sourcing important, it's the degree to which we wish to customise the end user solution that is the driver. If your solution is subject to minor change then our-sourcing is a good option. Our e-learning platform is our business and we want to be able to make significant changes on a regular basis. Trying to contract manage third parties to both provide 99.9% uptime AND process lots of change is not easy, contracts by their nature are all about defining risk in advance. In-sourcing has allowed us a finer grained management of risk.

Through your experience, what advantages does OSS potentially provide that proprietary options do not?

In many respects using OSS has a similar risk profile to in-sourcing. As a purchaser you always take the risk. Using commercial software you are buying into a solution with the intent of reducing risk. Of course this is often, (though not always), a chimera, commercial software comes with a service contracts and SLA's though when one hits an significant incompatibility, it's either very expensive or impossible to have it customised for your application. Don't misunderstand me, we use commercial and OSS database software. For all critical data I use the commercial provider. Our open source database software provides fantastic value for those applications that require read-only access.

And, when you are evaluating OSS options, what are some of the evaluation criteria that you prioritise?

Good question, we would use much the same criteria that we would for commercial software.

- How well established is it
- Is it a market leader
- What is the size of the user base
- Are there third parties providing support
- What do the technical people I respect think of this product
- How good a fit is it with our other Technical Roadmaps
- What is the total cost of ownership over 3 years likely to be

Using the above criteria to evaluate Apache, against other web servers , we decided to use apache :-)
Hope that helps Dick

13.2.3.1.5 5. Ken Udas - August 2nd, 2007 at 7:27 am

Dick,

Thanks much for this. I am sort of trying to make some connections between what we have learned through your posting and previous postings. Customization/localization is a major theme in both the open source software postings and the open educational resources postings in this Series, which I find quite interesting. You have introduced a different (or at least what feels like a different) aspect of customization. To this point it seems that most of the dialog about customization has been in recognition that different groups of learners (and faculty and administrators) will have different needs, so content and infrastructure should be localized to meet local cultural, linguistic, access, etc. circumstances and needs. It has been indicated generally that OSS and OER provide better opportunities for localization than proprietary software and educational content. Mara, in our last post, also pointed out some of the challenges associated with the level of customization that OSS can provide can impact on usability testing and user experience.

I know that my next question might not be answerable, but in any event, would you be able to articulate some of the differences between "customization" as you are describing/treating it and "customization" as described above (as treated in previous postings)?

Cheers & Thanks
Ken

13.2.3.1.6 6. Ken Udas - August 4th, 2007 at 6:41 am

Dick,

Hello. Just another little follow-up question. You outlined some of the advantages of using OSS. What were the challenges that you encountered (technical, organizational, etc.)?

Cheers

Ken

13.2.3.1.7 7. Dick Moore - August 5th, 2007 at 9:40 am

Ken

> *Would you be able to articulate some of the differences between "customization" as you are describing/treating it and "customization" as described above (as treated in previous postings)?*

Not a problem, Mara talks about localisation and making software a delight to use, while I agree with her that this is not often the case, it can be achieved by making it a functional requirement, if that's done then it will be built but often requires a long view to be taken at the start of a project.

Customisation / localisation seems to me to be most successful when it is system generated and determined from attributes associated with the user or set flags held within the user profile. I refer to this sort of modification as 'adaptive rendering'. The content and interface attempt to adapt themselves according to some system rules.

The other form of end user customisation that can occur is when the end user specifies specific data feeds or apply filters associated with their account, and your right neither of these are the kind of customisation I was referring to.

I was referring in my piece to a requirement to modify, at short notice core business rules that underpin something like funding.

User and functional testing will never be able to anticipate this kind of change or customisation never the less such changes to funding rules occur annually and, quit4e rightly, have strict audit requirements.

Outsourcing such systems where you know that you will be expected to make significant change each year but don't know what it is can be expensive and risky.

Does using OSS help here, well not directly but indirectly, the ability the flexibility and low cost associated with OSS enables us to prototype and understand the implications of these 'environmental changes' very quickly and at a relatively low cost. Mature OSS tools are so stable that the cost and quality of such development is significantly less, in my experience.

> *Just another little follow-up question. You outlined some of the advantages of using OSS. What were the challenges that you encountered (technical, organizational, etc.)?*

OSS development and application has a culture of collaboration and critique, as such it's designed to change quickly.

Auditors are always very keen for infrastructure and applications to be at the highest patch level.

So..... A challenge with OSS software in a commercial environment is keeping current. We get so many patches and releases for each application each year !

I have been careful not to name suppliers in this artical but I will make an exception for the RedHat Enterprise Linux who understand the commercial market and produce a new release every $18 - 24$ months rather than 3 times a year. Combined with quality training, this has helped overcome many of the traditional organisational challanges to OSS.

Like every other IT shop getting and keeping good staff is a challenge. I find that using OSS software and investing in training actually helps in attracting good staff and the training helps to keep them.

This hour-long talk by Google's Goranka Bjedov,[9] about performance testing of big OSS ICT systems. Speaks far better than I can about the real and practical issues in running large-scale e-learning delivery infrastructure. It made me laugh out loud five times at least.

[9] http://video.google.com/videoplay?docid=-6891978643577501895&hl=en

The OSS market is so much more mature than even 3 years ago, I am not surprised to hear that many suppliers of ICT services are working with OSS to increase profit while at the same time improve their quality of service.

Dick

13.3 Summary[10]

13.3.1 Summary - Running a Service Not a System

"Running a Service Not a System," the eleventh installment of the Impact of Open Source Software Series, was posted on July 25th, 2007, by Dick Moore who serves as Director of Technology at Ufi, where he looks after four teams that design, build and maintain learndirect's IT infrastructure. Thanks Dick for a great posting!

In his posting Dick provided some background on Ufi and learndirect, and then turned his attention to what it takes to "run a service" rather than just running a system. He then described some of his experiences with proprietary and open source tools and some of the rationale behind selecting OSS monitoring tools. Much of Dick's posting addressed the drivers and rationale for learndirect to in-source much of their IT infrastructure and to use OSS to perform appropriate mission critical functions. Dick sums-up his posting with the following key points:

- Don't confuse running a Service and running an application. Monitoring and non-functional requirements such as usability, supportability, maintainability, availability make the difference.
- Monitoring and its application is critical in running a service
- Getting a technology strategy that supports the business and recognizes that once started it's often expensive to change.
- In-sourcing /out-sourcing right-sourcing will impact what you have control of.
- Open source tools can be used to run world-class infrastructure.

13.3.2 Comments

The comments spanned a few areas including:

- the impact of OSS on strategy,
- organizational drivers that influenced learndirect's use of OSS,
- the nature of customization that learndirect requires in its course management system,
- evaluation criteria used for selecting OSS, and
- the advantages and challenges associated with adopting OSS.

Thanks again to Dick, for his insightful post and excellent responses to all questions, and other folks who have been reading along. We are taking the month of August off, but will be starting the series again on September 5th.

[10] This content is available online at <http://cnx.org/content/m14849/1.1/>.

Chapter 14

Summary - Year 1 (Ken Udas)

14.1 Year 1 Review - The Impact of Open Source Software on Education[1]

NOTE: Author - Ken Udas, Series Themes and CBPP. Originally submitted August 31st, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

I have tried to tie together some of the themes that were generated in the Impact of OSS and OER on Education Series. I have posted the results on WikiEducator[2] under the title Overview of the OSS and OER in Education Series[3] . It is now available for review, editing, critique, etc. Please feel free to visit the wiki, update and add to it.

One of the important underlying themes that I noted while reviewing the posts and dialog was implicit and explicit reference to Commons Based Peer Production (CBPP). CBPP is essentially the model that describes why OSS and OER work. It accounts for why individuals forming groups of varying sizes will create information and cultural assets with a net common-good impact for non-monetary rewards.

The model is based on the assertion that information resources are truly public-good resources in that they are non-rival[4] ; that is, the use of an information resource by an additional individual does not reduce the source of information, unlike physical resources. The model helps explain the nature of motivation and incentives that would normally be provided by restrictive intellectual property licensing, and identifies the circumstances under which CBPP is more efficient than other forms of organization.

The grist for the CBPP model is being able to treat information as a "Public Good[5] ." That is, it can be freely used as a source for the generation of new information. Without source information, the cost of producing new information increases. In addition, if the information product is treated as anything other than a non-rival public good, the motivation for contributing to a commons in which the right to use is guaranteed is virtually eliminated and the pool of available resources is diminished.

Given the current practice of converting information assets generated through public funding into private property, we might ask, "is CBPP is a viable model for sustained development?" This question, in the context of University Research Patents, is thoughtfully treated in a recent posting on e-Literate titled Should Universities Patent Their Research? Universities Say Yes. But should they?[6] . In the posting by guest blogger James Farmer, rampant patenting for short-term gain is placed in opposition to the social good that can come from forgoing patents without a well articulate social-good rationale. There is a strong voice for

[1] This content is available online at <http://cnx.org/content/m19768/1.3/>.
[2] http://www.wikieducator.org/Main_Page
[3] http://www.wikieducator.org/Overview_of_the_OSS_and_OER_in_Education_Series
[4] http://en.wikipedia.org/wiki/Rivalrous
[5] http://en.wikipedia.org/wiki/Public_good
[6] http://mfeldstein.com/should-universities-patent-their-research-universities-say-yes-but-should-they/

socially responsible patenting (and non-patenting) and a recognition that removing information from the public commons can have a net negative impact on society.

Although we can point to successful applications of OSS, which inspired Yochai Benkler to articulate CBPP in his article Coase's penguin, Linux and the nature of the firm[7] , it is important to ask under what conditions is the environment simply too toxic or (open information) impoverished to support the production of information assets based on the value of an open information commons.

Comments

kevingreen - September 2nd, 2008 at 3:18 pm For any questions related to patents (as I have seen in your article), I have found that patents.com[8] always seems to have some good information.

[7] http://www.benkler.org/CoasesPenguin.PDF
[8] http://www.patents.com

Chapter 15

Open Access Journal Literature is an Open Educational Resource (Gavin Baker)

15.1 Introduction - Gavin Baker[1]

15.1.1 Introduction – Gavin Baker

15.1.1.1

I want to welcome Gavin Baker and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on September 5, 2007 (eastern U.S.). Gavin will write about linkages between open access journal literature and open educational resources, arguing that free education needs free scholarship. This topic will broaden our dialog around open educational resources and their impact on education, which to this point has principally focused on courseware and the teaching mission of the academy.

Figure 15.1: Gavin Baker

[1] This content is available online at <http://cnx.org/content/m19771/1.3/>.

Gavin Baker is an IT and public policy consultant. Currently he is developing a student outreach campaign for SPARC[2] , the Scholarly Publishing and Academic Resources Coalition, on the subject of open access to academic journal literature. Gavin also serves on the board of directors for FreeCulture.org[3] , which is an international student organization that promotes the public interest in intellectual property and information & communications technology policy.

I am very much looking forward to Gavin's posting, which promises to build on the great dialog that was generated during the past months on the Series. Special thanks to Steve Foerster of ELS Marymount University[4] and friend of WikiEducator[5] for recommending Gavin and making the introductions. Please feel free to comment, ask questions, build on the conversation, and enjoy.

15.2 Open Access Journal Literature is an Open Educational Resource [6]

NOTE: Author - Gavin Baker, "Open Access Journal Literature is an Open Educational Resource". Originally submitted September 5th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

In addition to FOSS and OERs, there is another phenomenon which is having a marked impact on education – in particular, on higher education. This movement shares a similar philosophy, focuses on making content available online gratis, uses open copyright licenses, and most of the noteworthy software used by the movement is FOSS. I'm writing about the movement for open access to peer-reviewed scholarly journal literature.

Advocates of OERs should seek to understand the open access movement – not only out of curiosity over the linkages or similarities between the two movements (and there are many) but because, as I will argue, free education needs free scholarship.

(Readers already familiar with OA may wish to skip ahead to the section entitled "Why free education needs free scholarship (Section 15.2.2: Why free education needs free scholarship)".)

15.2.1 Open access: low-hanging fruit of free culture

The OA movement deals with (in the words of the Budapest Open Access Initiative[7]), "that which scholars give to the world without expectation of payment" – namely, peer-reviewed scholarly journal articles.

To borrow the words of Peter Suber[8] , open access is a response both to problems and to opportunities. OA tries to solve real problems: readers have limited access to knowledge, authors have limited impact for their scholarship, libraries have limited budgets for journal subscriptions. On the other hand, OA also aims to capitalize on opportunities: the potential for non-rivalrous, low cost distribution on the Internet, along with the information processing capacity of computers.

There is not complete consensus on the precise definition of an open access work (I understand this is a similar situation with OERs). However, two influential statements provide definitions: the Budapest Open Access Initiative[9] and the Bethesda Statement on Open Access Publishing[10] .[1] (p. 186)

Generally speaking, according to these definitions, open access literature is:

[2] http://www.arl.org/sparc/
[3] http://freeculture.org/
[4] http://www.marymount.edu/its/els/
[5] http://wikieducator.org/
[6] This content is available online at <http://cnx.org/content/m19770/1.7/>.
[7] http://www.soros.org/openaccess/
[8] http://www.earlham.edu/~peters/fos/newsletter/07-02-07.htm
[9] http://www.soros.org/openaccess/
[10] http://www.earlham.edu/~peters/fos/bethesda.htm

- Made available *gratis*, or "free as in 'free beer"', on the public Internet. There is no cost to access the content, aside from any costs incidental to access the Internet itself. Stated differently, access barriers to the content are removed.
- *Libre*, or "free as in 'free speech"'. Permission barriers to use of the content are removed. The definitions of Budapest and Bethesda differ slightly on the details here, but both require the freedom to use and redistribute, subject to attribution of authorship. The biggest discrepancies between the two definitions are on the subjects of derivative works and commercial use:
  - Bethesda includes the right to make and distribute derivative works, but is silent on the right to make commercial use.
  - Budapest states that authors should have "control over the integrity of their work", which restricts the ability to make derivative works. The declaration further states that integrity of the work and attribution of authorship should be "the only constraint[s] on reproduction and distribution", which implies the right to make commercial use.

Those familiar with FOSS and OERs will note the striking similarities in how the three movements define their work.

What does this look like? The first condition, free online availability, is usually satisfied one of two ways[2] (p. 186):

Archiving, usually by the article's author

Archiving, usually by the article's author. This is known as the "green" road to open access. Articles are typically archived by deposit in one of two types of Web sites:

- An institutional repository, provided by the author's institution to host the scholarship of authors affiliated with the institution. For an example, see DSpace at MIT[11] .
- A subject repository, provided to host scholarship in a particular field. For an example, see arXiv [12] (for physics and related fields).

An author may provide open access to his own articles by archiving them, regardless of whether the journals in which the articles were published are open access (subject to journal policies and copyright, but almost all journals allow this in one form or another).

Publishing in open access journals

Publishing in open access journals, which provide open access to their complete scholarly content immediately upon publication. This is known as the "gold" road to open access. For an example, see the Public Library of Science journals[13] .

The second condition, free licensing, is usually satisfied by way of a Creative Commons[14] license. Befitting the disagreement regarding which rights to grant and which to reserve, this condition has wide variance in implementation, from the PLoS journals[15] which use the CC Attribution[16] license, to most self-archived papers which contain no specific grant or waiver of any rights whatever (but are nonetheless commonly referred to as "open access").

Both archiving and journals are facilitated by widely-used FOSS packages, e.g. Open Journal Systems[17] for journals and EPrints[18] for archives.

It should be noted that open access has no connection with the quality of scholarship in an article or a journal. The same quality controls, such as peer review, are present in the publication process, whether or not the reader will need a subscription to access the output.

So where are we? A brief snapshot of the OA movement:

[11] http://dspace.mit.edu/
[12] http://arxiv.org/
[13] http://www.plos.org/journals/
[14] http://www.creativecommons.org/
[15] http://www.plos.org/journals/
[16] http://creativecommons.org/licenses/by/3.0/
[17] http://pkp.sfu.ca/ojs/
[18] http://www.eprints.org/software/

- 71% of journal publishers on the SHERPA/RoMEO[19] list formally allow some form of self-archiving.
- 2818 journals are listed in the Directory of Open Access Journals[20] .
- arXiv[21] , the preeminent repository in physics and related fields, includes the full text of nearly half a million articles.
- A number[22] of public and charitable research funders have mandated that grant recipients provide open access to publications resulting from the organization's funding. Other funders are considering adopting similar mandates, including the U.S. National Institutes of Health, the Canadian Institutes of Health Research, and the European Commission.

(In preparing this entry, I wrote a bit more about linkages and similarities between FOSS, OA, and OERs. I decided to excise that section from this post, but if you're interested in further musings on the subject, I invite you to my blog to read and comment there[23] .)

15.2.2 Why free education needs free scholarship

Here are four reasons why advocates of OERs should support OA journal literature:

1. As direct learning content in tertiary education (Section 15.2.2.1: 1. Journal literature as direct learning content, particularly in tertiary education)
2. As "outside-the-classroom" learning content (Section 15.2.2.2: 2. Journal literature as indirect or "outside-the-classroom" learning content)
3. As learning content for self-learners (Section 15.2.2.3: 3. Journal literature as learning content for self-learners)
4. As "raw materials" for re-use in free learning content (Section 15.2.2.4: 4. Journal literature as "raw materials" for re-use in free learning content)

15.2.2.1 1. Journal literature as direct learning content, particularly in tertiary education

As long as professors assign readings from scholarly journals, learning content will not be fully free if the journal literature is not free.

For the user (the student), the costs of accessing this learning content are non-trivial.[3 (p. 186)] The student pays these costs in the purchase of coursepacks, also known as sourcebooks. Coursepacks assemble readings from disparate sources, frequently including journal articles as a significant portion. Unlike a textbook, though, a coursepack is custom-assembled for each class. This gives a professor greater flexibility in selecting readings for her class, but this ability to change the contents of the coursepack destroys the resale market: nobody wants to buy an old coursepack with the wrong readings. Conversely, a student can often hope to recover 50% of the cost of textbooks in resale when the course is completed.

Who profits when students pay these access costs? The copy center or book store will receive a portion. Another portion may go to a rights licensing middleman, such as the Copyright Clearance Center[24] . But most of the revenue will go to the article's copyright holder – which, as a rule, is the journal publisher, not the article's author.

Open access cuts out these middlemen: once peer review and editing have been performed, and the article has been published, the article is forever free to the world for educational use.

Other approaches to circumventing the middlemen will not prove as sustainable a solution as OA:

- Relying on fair use as legal grounds to distribute copies of the articles to students is a perilous position[25] .

[19] http://www.sherpa.ac.uk/romeo.php
[20] http://www.doaj.org/
[21] http://arxiv.org/
[22] http://www.eprints.org/openaccess/policysignup//
[23] http://www.gavinbaker.com/2007/09/04/open-access-open-education-and-foss/
[24] http://www.copyright.com/
[25] http://fairuse.stanford.edu/Copyright_and_Fair_Use_Overview/chapter7/7-a.html

- E-reserves are similarly problematic[26] .
- "Virtual coursepacks," which link to copies of the articles in electronic databases via the institution's library subscriptions, only shift the cost from students to libraries. At a time when libraries have struggled with surging serials costs[4] (p. 186), this cannot be a sustainable solution, either.

15.2.2.2 2. Journal literature as indirect or "outside-the-classroom" learning content

Journal literature is often encountered in educational contexts other than where an article has been assigned for reading.

Most commonly, a tertiary student will consult journal literature as a source for coursework. Tertiary students are frequently assigned to write research papers which cite articles from scholarly sources, including peer-reviewed journals. The process of conducting this search, filtering and reviewing relevant literature is an educational process. Broad access to this literature enhances the student's education. Unfortunately, as long as scholarship is disseminated on a "toll-access" basis, some students will be priced out of access. This is particularly notable for students at educational institutions in developing countries[5] (p. 186).

Another educational context for journal literature is as optional reading for secondary or tertiary students. An interested student may (perhaps for extra credit in the course) volunteer to read journal articles related to class topics. Again, here broad access enriches the educational experience.

15.2.2.3 3. Journal literature as learning content for self-learners

If one considers education as lifelong learning[27] , then journal literature must be acknowledged as learning content with great value for self-learners.

Many parents of children with uncured diseases have an unquenchable thirst for information about the condition – particularly for rare diseases which receive little coverage in the mainstream press. Journal articles which report original research are of incredible value to help parents understand their child's condition. Unfortunately, many of these parents express frustration with obtaining access to relevant literature. (Many organizations which represent these parents are members of the Alliance for Taxpayer Access [28] for this very reason.)

Less dramatically, newspapers report daily on the latest findings of scientists and health research. Usually, the coverage reports findings originally published in a peer-reviewed journal. But the curious reader who desires to read the original paper himself is frequently stymied, not having a subscription to the journal. (For a light-hearted example to the contrary, see this recent article[29] from the Daytona Beach News-Journal, which points readers to an article deposited in the arXiv[30] .)

Going a step further, consider that prized tool of self-learners, Wikipedia[31] . Imagine if each Wikipedia article on a scientific subject was fully referenced (a goal[32] of the project). Imagine further that each citation linked to a freely-available copy of a relevant journal article. Those links would prove tremendously valuable to the self-learner who aspires to deepen his understanding of the topic.[6] (p. 186)

Beyond access barriers, removing permission barriers opens even more possibilities: translation[33] , summary[34] , annotation and commentary[35] , to name a few.

[26] http://www.libraryjournal.com/article/CA601047.html?display=NewsNews&industry=News&industryid=1986&verticalid=151
[27] http://blog.worldcampus.psu.edu/index.php/2007/05/29/lifelong-learning-in-knowlege-society/
[28] http://blog.worldcampus.psu.edu/index.php/2007/05/29/lifelong-learning-in-knowlege-society/
[29] http://www.news-journalonline.com/NewsJournalOnline/News/EastVolusia/evlEAST03082707.htm
[30] http://www.arxiv.org/abs/0707.1167
[31] http://www.wikipedia.org/
[32] http://en.wikipedia.org/wiki/Wikipedia:Verifiability
[33] http://dx.doi.org/10.1371/journal.pbio.0020025
[34] http://www.icommons.org/node/acawiki
[35] http://www.plosone.org/

15.2.2.4 4. Journal literature as "raw materials" for re-use in free learning content

OA journal articles can be cited in free textbooks, listed as recommended reading at the end of a textbook chapter, included as learning modules (with or without annotation, translation, summary, etc.), or repurposed for use in other learning content (need a graph or illustration? Just borrow it!).

OA journal literature represents a broad body of scholarly-quality content, without price or permission barriers, available for re-use to enrich OERs.

15.2.3 Conclusion

I hope this post sparks a lively discussion to inaugurate the fall series of contributors. I look forward to discussing these issues with you.

15.2.4 Footnotes

[0] By way of disclaimer, the opinions in this post (and in any commentary that follows) are not those of my client or anyone else, and I claim sole responsibility for them.

[1] A third notable statement on OA, the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities[36] , uses largely the same definition as the Bethesda Statement. Together, these statements are referred to as the "three B's" of open access.

[2] In The Access Principle, John Willinsky identifies not two but ten "flavors" of open access, six of which comply with the Bethesda Definition. John Willinsky, "Ten Flavors of Open Access", The Access Principle: The Case for Open Access to Research and Scholarship[37] (Cambridge, Mass.: MIT Press, 2006), 211-6.

[3] On the cost of textbooks and supplies for college students in the U.S.:

> *According to data from [the U.S. Department of] Education's Integrated Postsecondary Education Data System, first-time, full-time students attending 4-year private, nonprofit colleges were estimated to spend $850 for books and supplies in their first year, or 8 percent of the cost of tuition and fees during academic year 2003-2004 . . . In contrast, first-time, full-time students paying in-state tuition at 4-year public colleges or universities were estimated to spend 26 percent of the cost of tuition and fees on books and supplies, or $898, during the same period. At 2-year public colleges, where low-income students are more likely to begin their studies and tuition and fees are lower, first-time, full-time students are estimated to spend 72 percent of the cost of tuition and fees on books and supplies. Specifically, 2-year public colleges estimated that their first-time, full-time students would spend about $886 in 2003-2004 on books and supplies.*

source: U.S. Government Accountability Office, College Textbooks: Enhanced Offerings Appear to Drive Recent Price Increases[38] (Washington, DC: Government Accountability Office, 2005).

For anecdotal evidence on the cost of coursepacks specifically, see:

"Attack of the Wallet Killers[39] ", editorial, The Harvard Crimson (18 February 2005).

Personal observation: When I was a student (not long ago), I had classes where the coursepack cost more than the textbook!

[4] Scholarly Publishing and Academic Resources Coalition, "Book and Journal Costs, 1986-2002″, Create Change[40] (Washington, DC: Scholarly Publishing and Academic Resources Coalition, 2003), 3.

[5] See e.g. Willinsky, "Development", The Access Principle[41] , 93-110.

[6] Disclosure: For these reasons, I am involved in an effort to write a guideline for Wikipedia[42] on the subject.

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[36] http://oa.mpg.de/openaccess-berlin/berlindeclaration.html
[37] https://mitpress.mit.edu/books/willinsky/TheAccessPrinciple_TheMITPress_0262232421.pdf
[38] http://www.gao.gov/new.items/d05806.pdf
[39] http://www.thecrimson.com/article.aspx?ref=505822
[40] http://www.createchange.org/createchange2003.pdf
[41] https://mitpress.mit.edu/books/willinsky/TheAccessPrinciple_TheMITPress_0262232421.pdf
[42] http://en.wikipedia.org/wiki/Wikipedia:Open_Access

15.2.5 Comments

15.2.5.1 1. steelgraham - September 5th, 2007 at 1:25 pm

Dear Gavin Baker,

Many thanks for preparing, writing and sharing this most splendid blog.

I for one hope this gets the readership that it deserves.

Kind regards,

Graham Steel

15.2.5.2 2. Ken Udas - September 6th, 2007 at 7:39 am

First, I would like to thank Gavin for this great post. It really provides a nice foundation for discussion. In addition to providing some great background, it also provides the following 4 reasons why advocates of OERs should support OA journal literature:

quoted text

1. As direct learning content in tertiary education
2. As "outside-the-classroom" learning content
3. As learning content for self-learners
4. As "raw materials" for re-use in free learning content

Refocusing from the learner to the academy, I would assume that an organizational argument for publication in OA journals is that it facilitates part of the information and knowledge dissemination mission that strikes at the core purpose of many universities. Through reducing access barriers (not necessary peer review and quality assurance), would act as a catalyst for contributing to the development of disciplinary and interdisciplinary knowledge.

What are some of the arguments against OA journals? That is, have you (anybody) heard rationale from particular groups inside the academy or outside that challenge publication in OA journals? I would imagine that concerns about OA journals are different from OER Courseware.

15.2.5.3 3. RedSevenOne - September 6th, 2007 at 3:16 pm

First off the mark, this post has receive the much coveted, even by those who don't know it exists yet, 10/10++ rating on the Camp One Way Cool Scale.

1. Camp One exists because of the largess and profound understanding that exist and is growing for the need, we say, to put the joy back in learning.
2. Camp One exists as a sanctuary for a group of knowledge seeker who have made it back from the abyss that is Chrystal Meth addiction, who have discovered there is something out there an the Highway of Light to learn and moreover, enjoy learning.
3. Camp One exists because of a shared vision by a group of people who have 'Made It', yet who realized that there is a very fine line between the life they enjoy and the dark abyss just a hair thin line away.

Allow me to share what the profound power of Open Access can achieve –

'When 'Dave' first asked me for help, I suggest to people that asking me for help is a bad decision if they expect to fail, he had a $250.00/Day Meth habit. I introduced him to the Zome tool and hooked him up to my network. In time he became interested in High Energy Physics and devoured everything available from the folks at SLAC, Fermilab, and CERN. He the discovered arXiv and more recently Eprintweb at Cornell and read every dispatch, sometimes sent running to our data miner to find out more on topics he could not grasp.

'He discovered he could Email the authors of the reports and started asking questions about things he could not understand. A sort of Adhoc support group formed around the questions he asked because he had asked questions they had not thought of. This relationship as grown to the point that 'Dave' has been

invited to the first firing of the LHC next Spring at CERN. All this from a young man who I was told by the local Judicial authorities was a dead loss.'

Open Access has a thus affected the people I have contact with and as I have said in a few other venues, anyone who opposes it, can either Lead, Follow or Get out of the way, for change, it comes.

Martin G. Smith Ph.D – Coordinator
RedSeven Services – MATH Not METH
ABOTA*-ONAMISSION
[*A Bridge Over The Abyss]
Camp One – Hesquait
PO Box 201
Hesquait [Gold River]
V0P 1G0
British Columbia,
Canada

15.2.5.4 4. Gavin Baker - September 6th, 2007 at 4:26 pm

Graham and Ken, thanks for the kind words.

Ken, at the institution level, most of the momentum has been for OA archiving: the author publishes in whatever journal, open or not, and simply posts a copy of his paper online. A great deal of universities have opened an institutional repository in which faculty can deposit their papers. From the institution's perspective, it can create a place to showcase its scholarly output and help to disseminate it.

With regard to OA journals, there are some detractors.

I will not waste breathe on the PR pitbulls who shriek that OA journals spell the death of peer review; that is simply false. Peter Suber [43] and ARL[44] have thoroughly rebutted this claim.

I am sure there many other dumb arguments against OA journals, but I try to mentally filter out such noise.

Any good arguments against OA journals will focus on the only way in which they are different from toll-access journals: i.e. that their content is made freely available online, that their content uses open licenses, and that (because they give away their content) a subscription-based business model will be very difficult to sustain.

On the first point: There are no good arguments that free online access is undesirable. Some may argue that the benefit is not worth the cost, but no reasoned argument will deny that there are indeed significant benefits. Some question how much demand there is for free online access, but my experience suggests the demand is quite real.

On the second point: Again, some question the necessity of open licensing, but I find there are many reasons why it is desirable.

The biggest question with open licensing, I would think, is allowing derivative works, out of quality control concerns. (There are no valid reasons, in my opinion, to preserve the "integrity" of a journal article, other than quality control concerns.) But, as I address in a post on my blog[45] , there is nothing to fear; at least, what little there is to fear is worth the opportunities it opens.

The other sort of uses that one might want to prevent via copyright, such as commercial use or redistribution, are only concerns insofar as they imperil a particular business model. I will address this further below.

To the final point, that the preceding two necessitate a shift in business models: It's true. If you can no longer extract rent from access or permission barriers, you'll need to find a new business model. What are these models? I'll copy Willinsky here:

[43] http://www.earlham.edu/~peters/fos/newsletter/09-02-07.htm
[44] http://www.arl.org/bm~doc/issue-brief-aap-pr-prism.pdf
[45] http://www.gavinbaker.com/2007/09/04/whos-journal-has-backwards-approach-to-open-access/

Author fee: Author fees support immediate and complete access to open access journals (or, in some cases, to the individual articles for which fees were paid), with institutional and national member-ships available to cover author fees. e.g. BioMed Central

Subsidizied: Subsidy from scholarly society, institution and/or government/foundation enables immediate and complete access to open access journal. e.g. *First Monday*

Dual-mode: Subscriptions are collected for print edition and used to sustain both print edition and online open access edition. e.g. *Journal of Postgraduate Medicine*

Cooperative: Member institutions (e.g., libraries, scholarly associations) contribute to support of open access journals and development of publishing resources. e.g. German Academic Publishers

To elaborate a bit on the author fee model, I would break this down into two: full and hybrid. Full author fee journals are fully OA, with no subscription revenue. Hybrid journals charge subscriptions, but also offer *individual* authors the opportunity to pay to make their own articles OA; the theory is, the author fee offsets the loss in subscription revenue.

So, put differently, there are three fundamental publishing models for scholarly journals in a non-rivalrous digital environment:

Reader pays. (Where "reader" is a user online, not necessarily in print) If you don't pay, you can't have access. This is the subscription or "paywall" model used by toll-access journals. The journal's incentive, then, is to publish content that readers are most willing to pay for (or demand that their library pay for it). This has been a good incentive structure for high publication quality, but obviously provides a counter-incentive to provide the widest access (the incentive is to widen access only towards the point where number of subscribers and revenue per subscriber are optimized).

Author pays. If you don't pay, your article can't be published. It sounds a bit like a vanity press when you put it that way, but reputable author-pays journals don't collect until after an article has been accepted, so there's no "pay-to-play". (Reputable author-pays journals also have discounts or waivers for researchers who truly can't afford it.) The journal's incentive is to publish content that authors are most willing to pay for (usually from their research grants). This might sound like the journal's incentive will be to publish anything, and thus collect the most article processing fees. No doubt there will be a few journals that do this (as there have always been vanity presses), but I don't think most will go down this path. The publication process for an academic is all about prestige; if a journal is known to publish junk, it will have no prestige, and thus few academics interested in publishing there. So I think the incentive structure here, too, will support scholarly quality. If anything, the author pays incentive structure will support a change in quantity, I think, not in quality. Particularly if authors pays journals are completely electronic, whereas reader pays journals continue to publish a print edition, the reader pays journals are bound to a certain size (additional "Web only" content would be seen as having less prestige), whereas the author pays journals can publish as many or as few articles as they wish. In this case, I think the incentive for the author pays journals is to publish as many articles are of high quality and high interest, i.e. toward the optimal equilibrium between number of articles published and prestige per article. This might suggest that author pays journals will tend toward less journals with more articles per journal; or, since quantity is serialized, toward less-frequent issues with more articles per journal. Or, given that author pays journals mostly operate in electronic-only format, they might publish on a rolling schedule... At this point, I refer the reader to a game theorist, and will simply say that I don't think the author pays model will be the death of scholarly quality.

Third-party pays. If the sponsor doesn't pay, the author can't be published and the reader can't have access. This model has all the problems typically associated with the patron/donation/advertising/merchandising/promotional/what-have-you model. (Mitigated somewhat by the fact that your editors, referees, authors, etc. are still academics, and won't give their time to something with no prestige; if a journal starts printing nude centerfolds as ads for *Playboy*, I would expect defection from the academic labor, and so the journal would lose value. This is the essentially the same theory that the *New York Times* won't print bad journalism because it would make the paper less valuable.) On the other hand, if the cost of publishing is very low, this model may be very promising; so this could be a good fit for "no-frills" journals.

There may be separate issues that people mistaken attribute to OA, such as print vs. electronic, publi-

cation schedules, commercial vs. non-commercial publishers, etc. But, considering the diversity of business models for OA journals, none of them jumps out as a fundamentally flawed model; and if any of them are, I see no reason to think the market will be unable to self-correct. In OA publishing as it was with toll-access, I think there will be many different business models for journals, which will be operated by many different types of organizations. Some people have a problem with that uncertainty and say that OA publishing has no business model; I see the evolutionary benefits of diversity, and expect therefore that OA publishing will be with us for some time to come.

This is not to say there aren't many, many challenges, but I don't think of these will prove fatal.

15.2.5.5 5. steelgraham - September 6th, 2007 at 5:00 pm

To quote Stevan H:-
quoted text
"I wait patiently for someone to explain to me how and why, if all 2.5 million annual articles, in all 25K journals, were accessible free for all online, webwide, it would make the slightest difference whether copyright had been transferred to the publisher or retained by the author. The author remains the author either way; and the paper is freely accessible (i.e. OA) either way.

Paradoxically, it is in recognizing and supporting OA's much more general mission that we can also best support its health-related aspects."

Graham

15.2.5.6 6. RedSevenOne - September 6th, 2007 at 5:56 pm

Graham – Stevan is a has major hero status around here. Your quote hits the mark and misses the one point often yelled about and then tacitly ignored. The long established publishing houses, the ones who create the journal which we then read in print, fear the loss of their power, read Income, if Open Access is embraced universally. It is like so many other industries who have suddenly seen the 'Gravy train leavin' the station without them' to quote the late Huey P. Long. Will the industry rationalize itself? Yes it will. Will the dissemination of knowledge survive and prosper? Yes it will. Will the status quo prevail? No, it will not.

The only question of any relevance is, as I see it, who collects the money and how will it be distributed. We have a massive Print on Demand system coming on line before the end of the year. We would hope the there is a royalty system in place by that time so we can pay our way. We will consume enough material to keep at least one service running. I have my doubts, however whether the arguing will end by then.

I am not suggesting at the end of the day it should be about money, but that we need to get that issue resolved so that everyone can get on with the Real Work

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15.2.5.7 7. Gavin Baker - September 6th, 2007 at 10:16 pm

Martin, thanks for your comments.

Graham, in response to Stevan's comments, I agree with his statement but not with the stated reason:

If an article is licensed under a free license, e.g. the Creative Commons license as used by PLoS, BMC, et al., then it makes little practical difference whether the journal or the author holds the copyright. Either way, the article is free, irrevocably.

Getting the article online is not the only useful action one can make with the article copyright. Permission barriers, not just access barriers, are important. I discuss this at some length in a recent post on my blog[46] ; Peter Suber's comments on that post[47] are a good companion.

I have a great deal of sympathy for Stevan. To have seen this coming for over 10 years, and see how far we still are from the goal, even though the infrastructure is there and it takes so little of a researcher's time, must be terrifically frustrating. But, in my most humble opinion, he has a habit of confusing priority with importance. He seems to routinely dismiss any other goals or implementations of open access, saying in effect, "That's not important; just archive already!" And he's right: self-archiving should be the priority. But that doesn't mean the other goals aren't important.

Frankly, I would find open access boring if it were only about getting scholarship online for other scholars to find. There's so much more we can do with it, and there's no good reason not to.

15.2.5.8 8 Ken Udas- September 7th, 2007 at 7:06 am

Hello, Gavin, thank you for the thorough response to my question. You know, I have had a few interesting conversations lately and you struck on one of the themes – sustainability, which is frequently couched in terms of a business model. You provided what I think could be the start of a useful taxonomy that could grow significantly. I think that part of this is about motivation. We can take this in all sorts of ways, but I am thinking a bit about some dialog that followed from Wayne Mackintosh's post (Section 5.2) last April when Richard Wyles wrote a bit about OER and some demand and supply issues that related to motivations, In part of one of his comments he included the following quote:

Part of the problem I see is that the cost of course materials is, more often than not, borne by the student in the form of text-books or course fees when digital library resources come into play.

Pointing out that there is little motivation on the part of faculty to assign AO/Fee Free resources to support their classes. This might relate to two other conversations that I have had this week. One was with a colleague here at Penn State, who is a local leader in OER. We were talking a bit about your (this) post and he raised an issue of conflict. Although his department sees no problem with OA journals per se, there are no OA journals in his discipline area with a high enough selectivity index to be seen as valuable within the tenure and promotion review process. You could imagine too that a graduate student who is interested in an academic career would consider this factor as she considers how search and selection committees review curriculum vita. I guess that the connection that I am trying to make is that if universities tend to bias faculty and students to publish in highly prestigious journals, and a majority of those journals are not OA will they (faculty) be predisposed to think of quality in these terms also and assign course materials from closed publications?

Please note that I am not suggesting that OA journals and journal articles are of lower quality than other publication types, or that there is anything inherent in the OA model that dictates that this must be the case. I am simply suggesting that the academic culture as reflected in its reward system could perpetuate this perception.

Is what I described above a common experience? And, if so, does anybody know of a department or institution that has activity promoted publication in OA journals? Perhaps there are examples of academic units that put some sort of additional weight on use of low barrier publication vehicles?

This is really an area that I have very little experience, but would like to learn more. Just a little desktop research indicates that Thompson Scientific's ISI http://scientific.thomson.com/free/essays/journalcitationreports/impactfactor/[48] uses citation in other journals as the primary indicator of impact, which strikes me as a bit self-referential. I also came across the

[46] http://www.gavinbaker.com/2007/09/04/whos-journal-has-backwards-approach-to-open-access/

[47] http://www.earlham.edu/~peters/fos/2007_09_02_fosblogarchive.html#8806061328862375250

[48] http://scientific.thomson.com/free/essays/journalcitationreports/impactfactor/

Eigenfactor method http://www.eigenfactor.org/whyeigenfactor.htm[49] for journal ranking, which seems a bit more sophisticated that ISI. For example, it take into account a value factor, described as follows:

In collaboration with journalprices.com, Eigenfactor provides information about price and value for thousands of scholarly periodicals. While the Eigenfactor and Article Influence scores do not incorporate price information directly, the Cost-Effectiveness Search orders journals by a measure of the value per dollar that they provide.

Although this would factor in some access issues, the service http://www.journalprices.com/[50] used for "Cost-Effectiveness" does not seem to include the few OA journals that I search for. Perhaps this is just a feature of how recent the OA phenomena is.

Any thoughts, stories, insights??

15.2.5.9 9. RedSevenOne - September 7th, 2007 at 11:24 am

Ken and All - We have integrated Eigenfactor with a data mining Beta we have acquire from the folks at FAST [http://www.fastsearch.com/[51]] who were the originators to the AllTheWeb Search Engine [http://alltheweb.com/[52]] service now owned by Yahoo. We rarely used Google and never since it became a verb.

Our agreement is that once the testing is complete, it will be freely available both as a frestanding service and as an adjunct to Eigenfactor.

15.2.5.10 10. Ken Udas - September 7th, 2007 at 11:58 am

Hello,

I just wanted to mention that Martin's last post got caught by the Spam filter. The comments for this blog are not moderated so we have to have a reasonably strong filter. I am not sure why it caught Martin's but it did. This is the first comment posting that was filtered. I will keep an eye on this, so if your post does not show up immediately, it might have been caught, but I will stay on top of it.

Thanks!

Ken

15.2.5.11 11. RedSevenOne - September 7th, 2007 at 12:10 pm

Ken – I suspect my last post may have been caught because of the the brackets I used around the web references, I will refrain from doing that, at least that is what my hackers think. I appreciate your diligence, this is a very important subject around here and as we explore the capabilities that U-Penn has brought on line, this is a very exciting resource.

15.2.5.12 12. Gavin Baker -September 7th, 2007 at 8:44 pm

Ken, what you describe is very common. The incentive structure for academics is to publish in the journals of greatest prestige, which are generally not OA. A prestigious journal can generate a good deal of revenue for its publisher, which the publisher will understandably be concerned about losing. There are certainly other business models that work besides the subscription model, but I won't argue that the other models are as profitable – at least at this time.

Luckily, open access can be acheived even without OA journals. The vast majority of publishers allow authors to self-archive their articles, in some cases even with a Creative Commons license. If authors choose to publish in prestigious, toll-access journals, they can still make the article available gratis online. Educators, then, can point their students to the free online copy, rather than licensing reprint permissions from the publisher and buying a printed copy.

[49] http://www.eigenfactor.org/whyeigenfactor.htm
[50] http://www.journalprices.com/
[51] http://www.fastsearch.com/
[52] http://alltheweb.com/

15.2.5.13 13. ossguy - September 9th, 2007 at 11:46 am

When I tell people that academic papers (or other content) should be freely available, they almost always counter, "But how will the authors be compensated?" The four alternative business models you mentioned help answer that sort of question. I've written about a model similar to the Cooperative model which I call the Educator Donation Model. You can read about it on my blog at http://ossguy.com/?p=20[53] .

I've also written an article on some of the philosophical, economical, and practical reasons that educational materials should be open, which parallels some of the ideas expressed in your article. You can read it at http://ossguy.com/?p=19.[54]

Keep up the good work!

15.2.5.14 14. steelgraham - September 9th, 2007 at 12:13 pm

Gavin, you're spot on with your comments about archiving.

Two excellent resources spring to mind:-

1) BioMed Central's Summary of funding agency policies on open access:- http://www.biomedcentral.com/info/authors/funderpolicies[55]

2) Repository 66 Global Map of Institutional Repositories:- http://maps.repository66.org/[56]

15.2.5.15 15. SteveFoerster - September 9th, 2007 at 12:16 pm

I couldn't agree more that OA is a related issue to open educational resources. As the OER movement moves closer to drafting a declaration of commonalities, it's my hope that this will include an expression solidarity with open access.

In the meantime, I wanted to respond to Gavin's saying that journals will often allow authors to self-archive to add that conference organizers often are also fine with this when it comes to papers that are to be presented and be published in the proceedings. Recently I was deciding whether to submit an abstract and present at a particular conference, my only hesitation being the stated requirement to transfer copyright. I called the organizers and asked whether this were a negotiable point. It turned out that so long as they were able to publish the paper they were not concerned about anything else, and so my wish to dedicate the paper to the public domain wasn't a problem for them. In other words, it's worth asking, even if a call for papers doesn't initially seem friendly on the issue.

15.2.5.16 16. Ken Udas - September 13th, 2007 at 4:06 am

Hello. There have been some great comments and insights provided, and lots of linked resources (enough to take up a few evenings). It is apparent that OA Journals and Open Archives are building momentum and entering into the mainstream of academic culture.

What are the types of things that could happen or ought to happen to further fuel the momentum? And, as a follow-up, what do you think that the impact will be on education and/or education providers?

I am thinking about this a bit from the perspective of there being differential impact on independent life long learners, continuing education, formal and traditional, etc.

15.2.5.17 17. Gavin Baker - September 13th, 2007 at 6:22 pm

(I posted this a few days ago but it never showed up. Ken, easy on the trigger finger with that spam filter!)

ossguy, Thanks for the comments.

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[53] http://ossguy.com/?p=20

[54] http://ossguy.com/?p=19

[55] http://www.biomedcentral.com/info/authors/funderpolicies

[56] http://maps.repository66.org/

steelgraham, Stevan Harnad[57] is of course the authority on author archiving. OpenDOAR (Directory of Open Access Repositories)[58] and the Registry of Open Access Repositories (ROAR)[59] also have lists of repositories.

Steve, thanks again for the introduction. I hope this post will be circulated among participants in the upcoming Joburg meeting for their consideration. Unfortunately I won't be able to attend, but consider this an open offer to draft any language that would be useful.

On the topic of conferences: Conference papers and presentations are definitely a valuable type of non-journal content (along with e.g. working papers, theses, dissertations).

For conference organizers: The Public Knowledge Project develops companion software to its Open Journal Systems[60] , named appropriately Open Conference Systems[61] , which conferences can use to manage submissions, make papers publicly available, apply Creative Commons[62] licenses, provide metadata compliant with the Open Archives Initiative[63] , etc.

If you're not using OCS, you should still ask (maybe even require) permission from presenters to post their paper for gratis access and under the terms of a libre license. You don't need the presenter's copyright: If they agree to a CC license, you've got all you need.

For conference presenters: Seek to retain at least enough rights to post the paper online and apply a CC license. Science Common's Scholars Copyright[64] (including the SPARC Author Addendum[65] , here called "Access - Reuse") will be useful here, but obviously you'll want to change the terms from "journal" to "conference", etc. I don't know of boilerplate addenda for conferences specifically. OwnTerms, via Siva Vaidhyanathan, has a Speaker Agreement[66] which may be of use.

As long as you have the rights, you can archive your own paper, even if the conference doesn't. Preferably, archive your paper in your institutional repository and/or a relevant subject repository; at worst, you can archive on your own Web site or the Internet Archive[67] .

15.2.5.18 18. Gavin Baker - September 13th, 2007 at 6:46 pm

Ken: The momentum for open access seems to be in research funder mandates. For instance, the U.S. government spends billions of dollars each year funding academic research, resulting in thousands of journal articles published. There is a movement for such research funders to attach, as a condition of funding, the requirement that published articles must also be made available gratis online. A number of public and private funders have adopted such policies (details vary slightly), and more have been proposed; see this list [68] and look for funder mandates. Note that usually, these mandates do not require open access per the Bethesda or Budapest definitions, but only toll-free online access. Still, there's a lot of momentum there.

If the U.S. National Institutes of Health[69] mandate could finally get passed, that'd be a very notable accomplishment. NIH is funds a whopping amount of research. It would be the first mandate for a public agency in the U.S., which makes it easier to argue for the policy to apply to other agencies, as well.

The impact of improving access will be greatest where access is currently poorest. For individuals affiliated with large, wealthy, first-world research institutions, there are still limitations on access to the literature, but much less so than with students at a community college, say, or with no academic affiliation. Open access will level the playing field here somewhat — the rising tide lifts all ships. (Except for those without a boat, which in this metaphor are people without Internet access or literacy, but those are much larger

[57] http://openaccess.eprints.org/
[58] http://www.opendoar.org/
[59] http://roar.eprints.org/
[60] http://pkp.sfu.ca/ojs
[61] http://pkp.sfu.ca/ocs/
[62] http://www.creativecommons.org/
[63] http://www.openarchives.org/
[64] http://scholars.sciencecommons.org/
[65] http://www.arl.org/sparc/author/addendum.html
[66] http://ownterms.pbwiki.com/Speaker-Agreement
[67] http://www.archive.org/
[68] http://www.eprints.org/openaccess/policysignup/
[69] http://www.taxpayeraccess.org/NIH.html

questions. People without Internet access can still reap some benefit of open access literature, since the lower permission barriers make reprints much more attractive.)

15.2.5.19 19. RedSevenOne - September 13th, 2007 at 9:12 pm

The 'Except for those without a boat,' argument has been a long standing one in many fields. 'We can not', more often 'Will not' help 'X' until 'Y' happens. I have always practiced the 'Build it and they will come. . .' model which has served our whole endeavor well.

As an analogy, allow me to relate a story which occurred some years ago: There was a toxic spill on the Fraser River in British Columbia which result in a major fish kill. When the situation got to court two years later it was at a time when a large number of the plaintiffs in the case were out on the fishing grounds and could not attend the hearing. The counsel for the defense attempted to delay the proceedings which did not sit well with the judge who heard about, and the ordered the implementation of a very unique, for its time, 1975, solution. A network was set up using the the Environment Canada Weatherfax network which distributed the daily reports from the court and allowed the plaintiffs to then advise counsel.

While this example is not directly related to Open Access, it illustrates that if the initiative is taken on one end, it will be met on the other. As I said before, Camp One exist because Open Access exists and not having a level field of access is no reason for not providing it, as the ROARMAP is a testament to.

15.2.5.20 20. Gavin Baker - September 13th, 2007 at 9:32 pm

RedSevenOne, to be clear, I wasn't suggesting that because open access doesn't solve every problem in the world, it's not important. Just noting that we should not let enthusiasm get the better of our perspective and conflate open access to be the ticket to all knowledge and understanding. Open access is necessary, but not sufficient, for access to knowledge.

15.2.5.21 21. RedSevenOne - September 13th, 2007 at 10:00 pm

Gavin – I am in complete agreement with you. Open Access is one of many tools developed out of the maturing of the 'net.

What I have a continuing issue with is the constant rehashing of 'Who Pays. . .'

In our own context, we are massive consumers of Open Access material and will be the first ones to embrace any Fee Service System that develops or support through donation any other system which is put in place. I advocate neither, but will gladly contribute to either when the time comes. For us it will simply be another incurred cost.

We are going to list our effort with ROARMAP as soon as we can compose wording which best describes what we do. We don't exactly fit any standard educational/research model.

I have represented Camp One as a signatory on every petition which has come along and the Berlin Declaration is on the 'Required' reading list, right next to the full text of Alice's Restaurant, which holds as the source testament for the MATH Not METH movement. Knowledge is Power, as the old slogan says, anything which advances the general literacy of the world is a positive thing.

15.2.5.22 22. Ken Udas - September 15th, 2007 at 10:54 am

Hello, I think that there are a number of reasons to move forward regardless of the fact that we do not have universal access. This issue also came up in Kim Tucker's posting on the series. Here are a few reasons off the top of my head.

- The more content that is available the more demand that will exist for investing in creating pockets of access.
- The more content that it available, the more raw source materials there are to support the OER ecosystem.

- The more digital materials are available them more content there is available to convert to useable media (video, paper, CD, etc.) in the meantime.

What are some of the other reasons to push forward?

15.2.5.23 23. RedSevenOne - September 15th, 2007 at 12:03 pm

Dwelling on the somewhat esoteric for a moment

OA allows current thinking to be CURRENT for everyone.

OA allows greater collaboration by greater numbers of people interested or with expertise in the topic presented

OA contributes to the general literacy of the community and with the benefits of the distribution enabled by the Highway of Light, the World has become the community.

OA knows no boundaries, whether they are Political, Territorial, or Profit Generating which while being a continuing argument against it, is a compelling reason for it.

As I a have said, and has now been repeated in other venues, Camp One exists because Open Access exist and that for us, is reason enough to fight for it.

Dare I suggest that if we take the profit out of access in the first instance, everyone will profit in the second.

15.2.5.24 24. Ken Udas - September 16th, 2007 at 8:25 am

Martin, thank you for the additional items. I think that they point to a larger social good. That is the good that goes beyond reducing access barriers. Do you see any arguments for "waiting" until we have more technology parity? I am wondering if there is a legitimate "digital divide" type of argument. If all of the great content is differentially available, will to allow for the global "haves" to further their economic and political advantage over the "have nots?" If that is even a possibility, how would we address it?

15.2.5.25 25. Ken Udas - September 16th, 2007 at 8:33 am

Gavin, first, I appreciate the amount of time and thought that you have put into your post and discussion. I have one last question/request. I am wondering if you would be willing to take a few minutes and write about what you think the longer-term impact of freeculture.org will be on the academy, AO, publishing, etc. Earlier in the Series there was a lot of discussion about the "freedom culture," which subscribed to a broad view of free and libre resources (FLOSS, OSS, Research, AO, etc.) and behaviors. I would think that it is within student organizations that the seeds of change will have the best likelihood of taking root.

15.2.5.26 26. Gavin Baker - September 16th, 2007 at 5:58 pm

w/r/t to the digital divide, I absolutely don't think it's a reason to wait for open access. Open access reduces inequality of access, even with the digital divide, because Internet access is far less differential than subscriptions to academic journals. Also, as Ken notes, it's more likely that someone without Internet access will know someone who has access, than that someone without a journal subscription will know someone who has a subscription. In other words, it's easier to find someone who will print you a copy, or put it on a disk, if necessary.

My mention of the digital divide was meant to suggest that OA advocates not make the mistake of conflating OA with other issues. I'll crib from Peter Suber's "Open Access Overview[70] ":

> *Open access is not synonymous with universal access. Even after OA has been achieved, at least four kinds of access barrier might remain in place: Filtering and censorship barriers ... Language barriers ... Handicap access barriers ... Connectivity barriers*

[70] http://www.earlham.edu/~peters/fos/overview.htm

(I've suggested another, specialization barriers, which limits not access per se but comprehension.)

Open access is separate from those other problems. It doesn't solve them; it doesn't seek to, at least not directly. Indirectly, open access facilitates work-arounds for the other problems, as we've been discussing: e.g., lowering permission barriers lowers the cost of translation (to overcome language barriers). So, OA doesn't help much (though it does help a little), but it doesn't hurt, either.

There may be good reasons to work on the digital divide rather than on open access (e.g. you find it a more interesting problem, you find it a more important problem), just as there might be good reasons to work on any other issue (raising one's children well, stopping the genocide in Darfur, cleaning trash from a local waterway). But I don't know of a good reason not to work on open access, or to delay working on open access.

15.2.5.27 27. RedSevenOne - September 17th, 2007 at 12:28 pm

Ken - I don't think there is a need to wait, it is somewhat akin to waiting to reinforce a dam while the engineers do another study as to why a crack has developed, in the meantime an unexpected storm comes along and wipe the dam out leaving a bigger problem.

I have had the experience in another venue, where when we built a system to serve an under served population, the ability to access to the system was found. This can not be a 'All or Nothing' situation once people learn the information is available, they will find a way to access it.

I built a system called Camp One, deliberately made it hard to get to knowing that the people who really wanted the solution offered would find a way to get there. Shortly we will have Camp One v.II, with greater capacity and greater capability, simply because the desire for access has outstripped the ability to provide.

I suggest the same will occur with Open Access. From our point of view, we are looking at a Print On Demand model and charging what the market will bear, around 2X cost, with a provision for subsidized access where there is no ability to pay. The system we are studying has a net cost of US$0.03/page in Colour based on an output of 100+ Pages per week.

15.2.5.28 28. Ken Udas - September 17th, 2007 at 12:52 pm

Gavin and Martin, thanks. I very much agree with your thoughts regarding the access/digital divide issue. Although OA is not intend to solve a number of barriers, it enhances the value proposition of doing so.

If anybody sees this differently, please feel free to chime in.

15.2.5.29 29. RedSevenOne - September 17th, 2007 at 1:50 pm

Awe – Ken are inviting dissension just when everyone was learning to get along. But really, we have a saying at Camp One, when an issue comes up and no one knows where it is going, we say 'Let it run', that is it as very much a work in progress and as long as we all agree that is is progress, there is no need for argument.

One of the interventions I use is a 1000 Piece puzzle that arrives in an Ice Cream pail. You know there is a picture there, but have no reference to go by.

I suggest OA is very much like the puzzle with no box, we have points of reference, but no clear idea yet of how they will connect together, only the will to achieve that connection.

15.2.5.30 30. Web2 In Research: Tender/CVs/GavinBaker - November 26th, 2008 at 4:19 am

[...] Open Educational Resource", Terra Incognita - A Penn State World Campus Blog, 5 September 2007. <http://blog.worldcampus.psu.edu/index.php/2007/09/05/open-access-journal/> page_revision: 0, last_edited: 1227690432|%e %b %Y, %H:%M %Z (%O ago) edittags history [...]

15.2.5.31 31. jeimson - January 28th, 2009 at 9:56 am

very good

15.3 Summary[71]

"Open Access Journal Literature is an Open Educational Resource," the 12th installment of the Impact of Open Source Software Series, was posted on September 5th, 2007, by Gavin Baker who serves as an IT and public policy consultant. Currently he is developing a student outreach campaign for SPARC, the Scholarly Publishing and Academic Resources Coalition, on the subject of open access to academic journal literature. Thanks Gavin for a great posting!

In his posting, Gavin starts by drawing some connection between OA, FLOSS, and OER, providing a link to his blog[72] with a very nice more detailed treatment of the connections. Gavin then moves on to provide more in-depth background for OA referring to the Budapest Open Access Initiative and the Bethesda Statement on Open Access Publishing as touch points for a OA definition. He also introduces the open archiving and open access journals, providing a high level "state of affairs." In the final section of the post, Gavin asks why free education needs free scholarship. He outlines and describes four reasons why advocates of OERs should support OA journal literature:

1. As direct learning content in tertiary education
2. As "outside-the-classroom" learning content
3. As learning content for self-learners
4. As "raw materials" for re-use in free learning content

Comments
The comments spanned a few areas including:

- The impact of OA on individuals in need of information trying to solve problems (outside of the academy and formal educational institutions);
- Institutional interest in OA Journals and Archives;
- Potential business models that enhance sustainability and preserve integrity;
- Features of university culture including tenure and promotion and its impact on publishing in OA journals;
- Archiving, conference materials, licensing, and author permissions; and
- Who is supporting OA and who benefits, which led us to think about issues around technology access and inclusion.

Thanks again to Gavin, for his insightful post and excellent responses to all questions, and Graham, Martin (RedSevenOne), ossguy, and Steve, for making this a great exchange, and other folks who have been reading along. Please join in again on September 19 when Rob Able posts on OSS and Open and open standards. The schedule for the series[73] can be found on WikiEducator.

[71] This content is available online at <http://cnx.org/content/m19773/1.2/>.
[72] http://www.gavinbaker.com/2007/09/04/open-access-open-education-and-foss/
[73] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 16

Open Source and Open Standards (Rob Abel)

16.1 Introduction - Rob Abel[1]

I want to welcome Rob Abel and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on September 19, 2007 (eastern U.S.). In this posting, Rob will relay a few thoughts on the relationship between open source software that supports teaching and learning and open standards for data and application interoperability in the same space. It is a brief synopsis of "possible lessons learned so far" based on two years of experience. Rob reserves the right to evolve or change these lessons based on future experience.

Figure 16.1: Rob Abel

Already a veteran Silicon Valley high tech entrepreneur, Rob Abel entered the world of educational technology in 1999 by joining Collegis (now SunGard Higher Education[2]), the leading provider of information, academic, and online technology services in the U.S. higher education market. Prior to joining Collegis, he was responsible for development of products and services for online learning at Oracle. In 2004 Rob founded the Alliance for Higher Education Competitiveness (A-HEC) to conduct research on best practices in the

[1] This content is available online at <http://cnx.org/content/m19772/1.2/>.
[2] http://www.sungardhe.com/

use of technology in education. One study conducted near the end of 2005 looked specifically at the level and types of adoption of open source in the U.S. higher education market, sponsored by Sun, SCT, and Unicon. The report on this unique study is available online at the A-HEC Open Source Software Research[3] site. In February 2006 Rob was appointed as the CEO of the IMS Global Learning Consortium (IMS GLC), a non-profit member consortium that have been focused on developing specifications and standards for interoperability exclusively in the learning sector for now over eleven years. Participation in IMS GLC includes an annual report on Learning Impact: Trends in Learning, Technology, and Standards[4] . This report was inspired by the need to "connect the dots" between new and innovative learning technologies and the key global challenges of education leaders across sectors. IMS GLC has featured tracks on open technologies in its annual conference each of the last two years.

I am very much looking forward to Rob's posting, which promises to build on the great dialog that was generated during the past months on the Series. Although open standards have been mentioned in a number of posts, we have not dedicated much time to specifically discussing their impact on OSS and OER relating to education. In addition, the standards development process is one of much interest. Please feel free to comment, ask questions, build on the conversation, and enjoy.

16.2 Open Source and Open Standards[5]

16.2.1

NOTE: Author - Rob Abel, "Open Source and Open Standards". Originally submitted September 19th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

16.2.1.1

About 18 months ago, in February of 2006 I was appointed the CEO of the IMS Global Learning Consortium[6] . IMS is a non-profit member consortium focused on developing open standards for interoperability in the domain of learning and education. My sense was that open source software was an important trend in this domain, especially in the higher education segment. I had some fairly recent exposure to higher ed open source in the U.S. having just completed a research study on current usage and prospective usage. In discussions with the IMS Board of Directors, which included at the time several providers of non-open source solutions (and still does, by the way) there was confirmation on the importance of including open source initiatives in the open standards discussion. Since then IMS has included open source and open technology program tracks in our annual conference and added a couple of open source leaders, Moodle[7] (course management platform) and INFORMS[8] (student and administrative system platform), in addition to some existing participation from the Sakai community[9] , to our active participants.

I've also been involved in several invited presentations and panel discussions with some other very smart folks on the topic of open source and open technologies in both the higher ed and K-12 school segments. Through an accumulated experience of two years looking at open source and open standards and how they can, will, or might impact the learning technology segment, I have, at least initially, concluded a few things about open source, open standards and the relationship between them. Since we have a long way to go, I'm offering these as postulates that need to be proven. Here goes:

[3] http://www.a-hec.org/open_source.html
[4] http://www.imsglobal.org/learningimpact2007/li2007report.cfm
[5] This content is available online at <http://cnx.org/content/m19809/1.5/>.
[6] http://www.imsglobal.org/
[7] http://moodle.org/
[8] http://www.informs.com/edu.html
[9] http://sakaiproject.org/portal

Postulate number one: Open source reference implementations are extremely critical in achieving adoption of open standards for software interoperability.
I think the greatest proof point of this is probably Apache[10] – the availability of an authoritative reference model while organizations are attempting to adopt new interoperability standards is invaluable in accelerating industry participation. In learning standards, our conundrum is conformance.

One of my favorite sayings of the month is, "learning technology interoperability standards – great for researchers or consultants, bad for interoperability." The point being that pretty much all the specifications developed over the last ten years of progress are well, not very specific. Ethernet they are not. This, above all, in my opinion and in the opinion of many IMS members is the single largest reason that much very good work has been thwarted in terms of its potential for adoption.

As a result, IMS is doing a bunch of things under the name of "application profiling" to narrow down spec parameters for various communities – either by region or segment. We are also providing value to our members in bringing them together in various ways to support testing. But, while this is helpful, is there anything more efficient then the ability to build to an authoritative reference design?

Postulate number two: Standards organizations are pretty much the only way to get a level playing field when it comes to new open source applications for learning – however, that won't happen unless the open source projects/communities are active participants.
Some very successful open source initiatives leveraged existing investment in operating systems, web servers, etc. making the decision of what interfaces to implement pretty straightforward. Unfortunately, in end-user applications, and especially in education and learning, that prior investment doesn't usually exist.

One of my very repeatable conversations with new open source project X begins with: "OK, Rob, just tell us what standards you have and then we can adopt them." To which I reply, "well, if you want them to exist you need to help create them." Let's take course management systems as an example. Who defines the interoperability interface points between a course management system and other complementary components in what we like to call the "learning enterprise?" There is no obvious answer to that question.

If an open source initiative for learning wants to be on the cutting edge of defining that "enterprise architecture," well, then it needs to be involved in the standards creation and evolution. Another very repeatable conversation with open source initiative X goes like this, "well, Rob, we are implementing open source interfaces and therefore we are creating open standards – therefore, we don't need to participate in standards activities." To which my reply is, "best of luck to you!"

The reality is that unless you are Google, or of a similar size and market share, you will have an extremely difficult time getting critical mass around your homegrown standard. And, typically a small open source project (they all start out small usually) has the exact problem of competing against larger competitors, like Google, who are much more likely to pull off that strategy than they are.

Postulate number three: Whether open source or proprietary, it's all about the boundaries of customization.
That may seem like an odd statement but it became apparent to me when discussing open source and student systems with an audience at a presentation of mine at the JA-SIG conference in 2006. What I mean is that at the end of the day, both open source and proprietary solutions are challenged to come up with the right designs in the education segment with respect to what is customizable and what is not.

Those that want open source solutions include in the key factors control and customization. However, if control and customization comes at the price of "forking[11] " in the open source world, there is a big problem. You then lose the key benefit of the shared investment in upgrades, evolution, etc. that is so important. So, customization must be done judiciously and most importantly, designed into the core platform for forward and backward compatibility. This is exactly what seems to be the key challenge of many proprietary solutions in the education space. That is, is there enough customization afforded in the right ways so that the institution can differentiate itself, innovate, and so forth?

Postulate number four: Open source can be strategic to the goals of educational organizations

[10] http://www.apache.org/
[11] http://en.wikipedia.org/wiki/Fork_(software_development)

but I currently only know of one case in which it is.
Wow! Maybe I finally wrote something controversial. Maybe this qualifies as a blog now! It is very sad to me, but also an opportunity for those that wish to lead, that "the technologies of learning" are not strategic in our education institutions. What I mean by "strategic" is that the executive leadership understands that investment in technology to support learning is a key priority – not just to further the educational mission of the institution but also to further society's progress in the use of technology for learning.

I kind of wrote a whole article on this topic[12] earlier this year for Educause Review. For the purposes of this discussion, I want to point out that the same seems to be true of open source learning applications. The only exception I know of (there may be others I have not yet been exposed to) is the Open University in the U.K.[13] and their evolving adoption of Moodle.

Open U. sees participation in an open source community as a way to leverage investment and innovation. As such, Open U. has stepped up to a key leadership role in that community and sees this as an ongoing core investment. Again, the difference between this strategy and others I am aware of is that it is not an IT department strategy. It is an institutional strategy that goes hand in hand with the philosophy and strategy of Open U.

I realize that this sort of thing is not easy to pull off in higher education institutions, especially the elite institutions with many diverse and largely independent schools, divisions, departments, etc. And, as I already mentioned, this may be more of an issue with technologies for learning in general versus open source versions of that technology. It will be interesting to see if other institutions can follow suit and which ones will emerge as the leaders in learning technology, open source, or both. The relationship to standards should be obvious – institutional buy-in to learning technology standards will help move the market to the great benefits of standards adoption.

OK, so that's about all I think I might have learned. I'm very interested in your reflections on the topic. We have been very active in transforming IMS Global Learning Consortium[14] into a venue where these sort of bigger picture ideas are discussed, in order to help inform the global learning segment. You may find our annual report[15] on trends in learning, technology, and standards of interest or might be interested in joining our online community[16] .

16.2.2 Comments

16.2.2.1 1. Ken Udas - September 21st, 2007 at 4:22 am

Hello, First, I would like to offer a big thank you to Rob for his thought provoking post. I think that there are lot's of practical hooks here and I would like to take advantage of them. I concur with Rob's third postulate

> *Postulate number three: Whether open source or proprietary, it's all about the boundaries of customization.*

but I have some practical questions.

It is not uncommon for an institution that is considering the adoption of OSS to cite customization as a major factor in their decision making. In fact, one of the major themes that came out of this Series (Impact of OSS and OER on Education) was the benefits that could be derived from FLOSS through localization. Does anybody have anything to offer about how to take advantage of the potential to customize without "forking." (examples would be great) Or, under what circumstances is it appropriate to fork a project?

What is the role of open standards?

[12] http://www.educause.edu/apps/er/erm07/erm0720.asp
[13] http://www.open.ac.uk/
[14] http://www.imsglobal.org/
[15] http://www.imsglobal.org/learningimpact2007/li2007report.cfm
[16] http://www.imsglobal.org/register/login.cfm

16.2.2.2 2. richardwyles - September 22nd, 2007 at 6:34 pm

Hi Rob, Ken and colleagues,

A great thought provoking post. Regarding the boundaries of customisation, this is typically defined by easily workable programming interfaces (ideally correlating to open standards), system architecture and constraints of licensing - licensing constraints can also include incompatibilities between open source licenses. When you have a large community based open source project the architecture is often highly modular - e.g. Drupal, Moodle. This enables more customisation, plus better backwards and forwards compatibility. So individual institutions can have quite different configurations without forking. Moodle is a classic case where this application is being used for home schooling and institutions with many 10s of thousands of users. However, as the core code matures and it inherently becomes more complex and the skills and investment barrier for customisation can increase.

For Postulate Four, I'd like to refer way back to my post back in March here on Terra Incognita (Section 4.2)

Actually I'm proud to say that our work here on enterprise scale implementations of Moodle, particularly at the Open Polytechnic of New Zealand, helped Open University in their selection of Moodle.

Strategic adoption of open source infrastructure is happening in New Zealand at a pan-institutional level and may even start to impact the paradigm of institutional learning as we view it in a traditional sense. Over the past year I've been leading an initiative that has developed what we call Moodle Networks - it is a trusted Single Sign-on framework where multiple Moodle installations can be networked with all sorts of configurations possible. We used XML-RPC rather than a full Shibboleth framework. I often describe it as an "Intel inside" strategy whereby the institutional "nodes" are the access points to the network rather than typical (and in my view flawed) portal approach to learning networks.

It doesn't stop with Moodle. Mahara (www.mahara.org[17]) is to be the ePortfolio and student social networking platform that will be deployed as http://www.myportfolio.ac.nz[18] . This is a pan-institutional strategy that will bridge both further and higher education institutions. Similarly, open source repository systems where through the OARINZ project we are seeing wide-spread adoption of open source and OAI-PMH compliant repository systems deployed across the entire sector - DSpace, Fedora and Eprints are all being used.

All this is happening outside of any direct Ministry direction (although naturally consistent with the eFramework SOA direction) and so I would argue these are very much institutional strategies but even more importantly the national virtual learning environment is underpinned by open source and open standards. When working with Ken Udas back in 2004 we set up http://www.eduforge.org [19] to help manage the various projects that make contribute to the overall framework. Being advocates of openness this was conceived as an open platform for anyone to use so it is heartening to see so many international projects there.

Anyway, I'm going on a bit here, excuse me ;-). Rob, perhaps I'll see you at the IMS meeting in Queenstwon in November.

regards Richard Wyles

16.2.2.3 3. Rob Abel - September 22nd, 2007 at 7:22 pm

Hi Richard, Yes, I will see you in New Zealand . . . first time there and looking forward to it.

If you haven't already, I hope you submit your work for a LIA Award:
http://www.imsglobal.org/learningimpact2008/li2008submissionregional.cfm[20]
Best, Rob

16.2.2.4 4. Gavin Baker - September 23rd, 2007 at 7:00 pm

The reality is that unless you are Google, or of a similar size and market share, you will have an

[17] http://www.mahara.org/
[18] http://www.myportfolio.ac.nz/
[19] http://www.eduforge.org
[20] http://www.imsglobal.org/learningimpact2008/li2008submissionregional.cfm

extremely difficult time getting critical mass around your homegrown standard.

I would clarify that statement: *if it competes with an existing standard.* If you make a standard where there isn't one, if it's good, it may get adopted — see, e.g., RSS.

16.2.2.5 5. Gavin Baker - September 23rd, 2007 at 7:44 pm

Re: postulate 4, I feel like using FOSS should be strategic to the mission of the university in several ways. It would be helpful to articulate this well — to have a document that says, "This is why you should support this". (That's what I tried to do in my post on open access, for OER advocates.)

Who's articulated that message well? If it hasn't been done well yet, what would that message say? How does FOSS connect to the mission of the academy?

16.2.2.6 6. Rob Abel - September 23rd, 2007 at 7:55 pm

Hi Gavin, Thanks for the post. I would agree that something doesn't have to be a standard or worked through a standards organization to get critical mass of adoption. Many approved standards - in fact the majority of them - never get a critical mass of adoption. So, the point I would make is that it's a question of where you can get the right parties involved so they will adopt it. This is probably more important than if there is an existing standard already or not. A Google has such a huge market share and so many partners that follow their lead that they can create a snowball of adoption. This is why a large market-share leader generally needs to be convinced as to why they should spend time in standards organizations when they can dictate the actions of a large portion of the market.

My point relates to the educational open source efforts to date in that they have relatively small market influence and benefit greatly in a standards organization if it has enough participants to create that snowball effect.

I wasn't familiar with the history of RSS - I found this site - can't vouch for its accuracy: http://www.rss-specifications.com/history-rss.htm[21]

The way I read the history is that Netscape had a major role in RSS in the 1997 and 1999 era. Although Netscape dropped it, they were a very big dog in that time period and their efforts on it certainly signaled that it could be important to the market.

So, in a way, you are right that it certainly made its way without Google or a standards organization. On the other hand, it supports my argument as well in that there probably was fairly rapid adoption by the major browsers because they had been looking into this already and needed a solution.

Thanks again - you made a great point there . . . Best, Rob

16.2.2.7 7. Ken Udas - September 24th, 2007 at 4:37 am

Hello, Does anybody have any thoughts on the relationship between open standards and open source? I recognize that this is an overly broad question and could be taken in a number of directions, but I am thinking along the lines of what this means practically to folks who make technology adoption, support, and use decisions at schools colleges, and universities. For example:

- Could somebody take a minute and outline some of the benefits of open standards and how they might practically impact educational institutions?
- What are some of the practical challenges of establishing open standards?
- Are there qualitative differences between OSS and proprietary methods of production, licensing, code transparency, community, etc. that impact adoption of open standards and participation in standards development?

I guess that this is about strategic adoption of learning support, design, delivery, and presentation technologies. We all want to meet current functional needs, but recognize that we also need to shield ourselves from some of the risk of pursuing a technology cul de sac without a viable exit or migration strategy.

[21] http://www.rss-specifications.com/history-rss.htm

16.2.2.8 8. RedSevenOne - September 24th, 2007 at 1:58 pm

Has taken a while to digest the content of this entry, now having done so I would like to refer back to my comment Gavin Bakers entry 'Open Access Journal Literature is an Open Educational Resource' of 2007-09-05 (comment #3)

I agree with the points of the Four Postulates and they have become yet more fodder for the ongoing discussions as we advance our learning network out the Camp and on to the streets. I remain confident that at the end of the day Open Access will become a 'Habit' and universally accepted for. To use a analogy recently made about our own situation - 'You hatched this dragon and now that it has learned to fly, have fun trying the get it back. . .' Open Access will grow with the cooperation of the status quo, or it will replace and become the status quo and the sooner people embrace the idea the better it will become. I realize I am speaking to the converted, but we are a unique aberration, rapidly becoming a force and it is incumbent on us all to get people to listen.

'Control+Ault+Delete' is no longer the status quo. I love the quote of Tom Perkins in Wired Magazine 15.07 http://www.wired.com/culture/design/magazine/15-07/ff_boat[22]

'No way Bill Gates is controlling my boat, – I don't ever want to have to press Control-Alt-Delete to restart, to make my boat go.'

I suggest that this applies to more than Bill.

16.2.2.9 9. Ken Udas - September 27th, 2007 at 5:51 am

Hello. I would like to refer for a moment to Rob's second postulate:

> *Postulate number two: Standards organizations are pretty much the only way to get a level playing field when it comes to new open source applications for learning – however, that won't happen unless the open source projects/communities are active participants.*

I very much also hear in Rob's message that Open Standards require participation and activate involvement. I also understand that to achieve that type of participation, the standard development process must also be open.

How does IMS facilitate this? That is, what types of commitments does IMS have, and processes does IMS use to help keep the development of open standards open (and participatory)?

Thanks

16.2.2.10 10. Rob Abel - September 27th, 2007 at 7:04 am

Hi Ken, Great question. Excuse the brevity in the response as I am heading out on a trip.

Open standards organizations conduct business under rules and processes that vary by organization, not unlike the variation is how open source development efforts are managed. Just as decision-making on what gets in or out of an open source release is managed through some process or other, the decision-making on standards is also managed. IMS has been a form of organization that is a non-profit member based consortium in which it is the members that make the decisions through their votes. This is similar to most of the major international standards organizations, such as W3C and so forth. The large majority of community participation in the "openness" of standards work is at the same phase in which most of the participation is in open source - when the next official version is released. Thus, this is really use of the the specs which are openly available and free of royalties. In IMS we have some tools and processes we have put in place over the last year to support profiling of the specifications (customization for specific needs), for the community to use and thus contribute to the evolution of the work.

As with all standards organizations, IMS has various points and processes by which to engage if you are an interested party outside of the membership. These include open summits held in conjunction with our 4 quarterly meetings, our annual conference, making use of invited experts, open calls for participation, use of invited experts who may be non-members, and several tiers of paid participation in addition to membership.

[22] http://www.wired.com/culture/design/magazine/15-07/ff_boat

We will also vary policies by workgroup depending on how we can get the best set of participants engaged. It's important to understand that our primary focus is on getting a sufficient set of committed parties involved in the development of the specifications as opposed to an all-inclusive participation. As discussed in one of the prior posts, the value of a specification is in its adoption in the marketplace. Having some type of inclusive participation of all comers in the spec development process and ending up with something that is not used to achieve interoperability is a failure from our perspective and from an open standards perspective. So, we are looking for commitment from major market participants and the membership model seems to fit that well.

But, who knows - we may evolve to a different or better model in the future :-) Best, Rob

16.2.2.11 11. Patrick Masson - September 27th, 2007 at 9:28 pm

Rob, Your introductory question got me really excited. "Open source, open content, open technologies, open standards – is there any relationship between these things?" I was hoping (dreaming, no fantasizing) your post would outline not only a technical roadmap, for implementing an architecture around integration and interoperability (I think these terms are often inappropriately interchanged, see below) between services, but also a political roadmap with advice for those looking to include standards as a technical requirement within campus systems.

But perhaps the introduction was not rhetorical, so I'll bite: yes I believe there is a strong relationship between these things. (Although I admit to being very thin with regard to open content, but the other issues related to openness: definitely)

The theme of Terra Incognita's "OSS and OER in Education Series" seems to revolve around learning management systems and the integration/interoperability (there they are again) of teaching and learning tools, with the contributions, perspectives, opinions etc. primarily from those within higher ed with some role in the design, development and/or deployment of educationally focused software.

I can't put my finger on it, but there seems to be another set of values, or perceived benefits, that drives interest in, and adoption of OSS, within education, particularly higher education—and I think the four postulates that Rob presents highlights this.

Reference Implementations. I'm not sure if a parallel can be drawn between Apache and Moodle, Sakai, uPortal, Kauli, etc. My interpretation of a reference implementation includes, not just the methods for collaboration, design, development, communication, control, governance, etc. but also the user-developers and "customers," i.e. those defining technical requirements based on functional requirements. Apache, the project, is driven by a (rather narrow) shared need and understanding of an http server. However, sitting through several conferences regarding educational technology, I'm not sure if there is a shared vision of how teaching and learning tools should function, and thus the technologies (including those standards). I never really know where a "Content Management System" ends and an "ePortfolio" starts; or if a Learning Management System needs a blog or wiki or both for "small group work."

Standards Organizations: I know I have played both the roles Rob describes, "Can I get the standards library for grade books integration/interoperability," (again): student, faculty, course, section, session, assignment, date, values, weights, etc. (or whatever you called them when you "standardized"). And of course, "this app will be so bitch'in everyone will want to use it and thus our specifications will become the standard. Yet the complexity of teaching and learning definitions and thus the feature set included in those tools don't allow for "standards" because there are no standard definitions for functionality. Again, what is a grade book vs. an ePortfolio, vs. a content management system? And thus what is a standard set of functions to be described? I guess I wonder what comes first, the standard or the definition?

Adding to the complexity is the architecture for integration and/or interoperability. Quickly I consider integration as the aggregation of content through a standard interface (I guess that's a double entendre): for example single-sign-on allows for multiple applications to be presented to the end user, perhaps through a portal. These systems all seem "integrated." Interoperability is the use of data generated in one application resulting in some event within another. For example, I add an assignment (including due date) in my LMS and that assignment shows up in my email calendar. How these services are obtained (integrated) and shared (interoperate) can be achieved by a variety of technical approaches—from point to point integration through

an API to canonical data models—all requiring different "standards." In fact one comment made when we where connecting the Sakai grade book to a legacy LMS was that we, "should modify the OSID interface, currently the interface is only implemented in 'spirit'."

Customization: "Those that want open source solutions include in the key factors control and customization." I don't know if this is as important to those outside teaching and learning. I can tell you, as a programmer analyst and now CIO, I have never wanted to customize or control Apache or Linux. And while we are implementing Moodle at SUNY Delhi, we are not interested in customizing that either. My interest in open source is based on, what I consider more important qualities found in open projects: quality, support, pace of development, TCO and, germane to this discussion, adherence to standards or at least open specifications that we can then at least access to provide integration and hopefully interoperability. In fact, I have seen customization; arguably the most touted benefit of OSS next to it being "free," actually hinder adoption of open source and thus open standards. Again because those assessing the value of open source in teaching and learning applications tend to be those involved with teaching and learning, the prospect of having a customizable applications that can be modified to meet the diverse needs of the campus' faculty, unique teaching styles and/or specialized academic programs is very appealing. Yet as Rob highlights customization (forking) demands support, something IT shops are usually not interested in.

Open source can be strategic: Again, in my experience (and admittedly I have been in some messed up organizations), I don't see a lot of senior campus leaders looking at technology as an investment to "further the educational mission of the institution or further society's progress in the use of technology for learning." I see senior leadership providing the minimum in order to keep their faculty from storming the castle, or simply keeping up with the University of the Jones', or using technology of some scheme (e.g. distance learning to increase tuition dollars).

IMS is a great effort and I wonder how well the standards identification process is going with regard to services related to higher education, and more specifically teaching and learning, versus other technology efforts? Is my perception of the ambiguity in what teaching and learning tools are, and thus the functionality they have, as well as the alternate value/benefit of OSS accurate, and can this be the cause for such a slow process?

16.2.2.12 12. Rob Abel - September 28th, 2007 at 9:18 am

Hi Patrick, Very thoughtful. I have only a few comments to add for those who are interested in this rather eclectic world of learning technology standards:

Reference implementations and where do some systems end and others start: Ten years ago we did not know where the learning management system and content boundary was - as the CMS/LMS/VLE did not exist as a separate component - and in some cases (adaptive learning applications) we still don't. The evolution of the product categories and functions is ongoing. We have something we call the "Learning Enterprise" which is a diagram that we are working with interested parties (mostly vendors right now), to help inform the market what these interfaces are currently and what's coming next (see the Achieving Learning Impact Report for a view of this - see page 19 of the Exec Summary: http://www.imsglobal.org/learningimpact2007/li2007reportExecutive.pdf [23]).

Standards vs definitions: I spent a lot of time thinking about this coming into IMS and I think that most regulars at IMS meetings are tired of hearing my views on this. I'm convinced that the innovation comes first (e.g. world wide web) and then, either through the brilliance of the individual inventor or some other group of designers interacting around it, it becomes apparent that there are needed interface points tht need to be agreed upon, and those are what become standards. I personally don't believe that a bunch of smart people sitting around a table can successfully architect anything - whether an interface definition or standard - in the absence of implementing. Again (see some threads above) this comes back to the "critical mass" of implementors and implementations. Until a true critical mass and majority of a market adopt something it is not a standard - it is simply a good idea, a toolkit, a development aid, etc. In learning technology right now, we have a bunch of the later and pretty much no actual standards. IMS Content Packaging is the

[23] http://www.imsglobal.org/learningimpact2007/li2007reportExecutive.pdf%20

closest thing to it in this market. However, we are doing our best to change that situation with some of the steps I outlined in the original post. We have high hopes and good signs on both Common Cartridge and Enterprise.

How well is the standards identification process going? - Well, IMS has about 20 approved standards and they all focus on teaching and learning. Many - probably most - were well ahead of their time in terms of seeing the future of learning technology instead of what actually existed in the mainstream at the time - things like Learning Design and Simple Sequencing come to mind but actually the majority were and still are ahead of the market. What is kind of exciting is that there seems to be significant renewed interest in IMS. We've had a double in membership/subscribers and participation in the last 18 months. What we are finding is that the great work that is captured in those 20 standards can be "profiled" and applied to what folks are interested today. For instance, in that base set of work we have all the tools we need to address tagging of learning content with curriculum standards pr learning objectives, test for those, report on attainment, and change the sequence of activities for the learner. That scenario involves about six different IMS specs. So, what we are doing in some of the newer workgroups is applying that prior work in a group setting through prototyping and testing. From there we use the experience as input into how to profile the existing specs and create something like Common Cartridge - which is much better defined than past learning tech standards - so, it will actually result in interoperability and not just a nice toolkit or connonical architecture. This kind of stuff is a lot more fun and or more interest to developers than sitting around the table and talking about a specification document.

IMS is a member organization and my job is to do my best to represent what the board of directors and members want to do. However, my personal view of what we should be trying to do in IMS is to be a "force multiplier" with respect to investment in technology that improves teaching and learning. Despite all the money that is spent in the education and training sectors, a pitifully small amount is actually spent on advancing the R&D in learning technology. Education and learning is the most important priority if humankind wants to achieve a better future. It is also critically important for economic development. It's a long story, but, if we don't figure out how to apply technology to the learning challenge we are not going to improve much. It is the higher education sector in particular that has the most motivation and dedicated resources to address this challenge. The idea of standards and, in my personal opinion, IMS in general as a platform, is to maximize the investment across the various organizations and communities focused on advancing learning tech. We need to do this because the amount of current investment is small and we can't afford the normal reinventing of the wheel at every institution, country, and so forth.

Best, Rob

16.2.2.13 13. Patrick Masson - September 28th, 2007 at 3:11 pm

Rob, Thanks, you're spot on: "Despite all the money that is spent in the education and training sectors, a pitifully small amount is actually spent on advancing the R&D in learning technology."

I guess I am just so frustrated by that. I continually struggle with my colleagues about the role of colleges and universities: we should be innovators, not consumers, partners not patrons, involved in design not just deployed, etc. etc. etc.

Because in the end we are the ones who benefit most through not only better tools and thus better education, but better systems and thus better operations.

Keep up the good work, I am glad to hear of IMS' continued growth. Patrick

16.3 Summary[24]

Open Source and Open Standards," the thirteenth installment of the Impact of Open Source Software Series, was posted on September 19th, 2007, by Rob Abel who serves as CEO of the IMS Global Learning Consortium[25] (IMS GLC), a non-profit member consortium that have been focused on developing specifications

[24] This content is available online at <http://cnx.org/content/m19812/1.2/>.
[25] http://www.imsglobal.org/

and standards for interoperability exclusively in the learning sector for now over eleven years. Thanks Rob for a great posting!

In his posting Rob starts by introducing his experience in open source software and open standards. He also references a recent study that he has been involved with about current and prospective use of OSS in higher education. Rob follows his introduction with 4 postulates that summarize some of what Rob has learned during the past few years. He provides a brief description and some examples for each of his postulates. The postulates serve as points of departure for further dialog.

- **Postulate number one:** Open source reference implementations are extremely critical in achieving adoption of open standards for software interoperability.
- **Postulate number two:** Standards organizations are pretty much the only way to get a level playing field when it comes to new open source applications for learning – however, that won't happen unless the open source projects/communities are active participants.
- **Postulate number three:** Whether open source or proprietary, it's all about the boundaries of customization.
- **Postulate number four:** Open source can be strategic to the goals of educational organizations but I currently only know of one case in which it is.

Rob completes his posting by reinforcing his and IMS's commitment to addressing some of the larger issues associated with open standards and open source software for education.

16.3.1 Comments

The comments touched on each of Rob's postulates at varying depth. It is obvious that standards development is important and complex. I believe that for most folks who use educational technologies there is a vague understanding that standards are important and open standards are better than ones that are closed. Perhaps more importantly, open standards development is not really understood by a vast majority of technology consumers and users at universities.

IMS has assumed a challenging task. I have heard quite positive comments about its role and potential and a number of detractors about execution and operation. While this posting and the ensuing dialog touched on a number of very interesting issues, connecting open standards, OSS, and education (which is exactly what we wanted); it did not really get to the options that a standards development organization has, its underpinning values and goals, and how it executes/operationalizes them. A future follow-up discussion might provide an opportunity to make the whole standards development process more "real" to teachers and administrators who make and influence technology decisions, but will probably not actually participate in standards development. An open dialog may also be a reflective exercise for other involved in the process.

Some comment highlights included:

- Richard Wyles pointed out the use of OSS in New Zealand, not only at the institutional level, but at the pan-institutional level in a manner that is coherent with Ministry of Education objectives.
- Along the lines of strategic use of OSS, Gavin Baker indicated the importance of being able to articulate FOSS use as directly relevant to the university's mission. He asks who has done this well?
- Gavin provides an interesting observation about Rob's second postulate, pointing out that although it can be hard to introduce a "homegrown" standard, it is possible, even if you are not the size of Google, if it does not compete with another existing standard and if it is a good standard.
- The role and model of IMS in open standards development.
- There was some discussion prompted by Pat Masson about OSS and Open standards in education, the impulse to customize, and the need to innovate rather than passively consume and adopt technologies. It was noted that educational technologies are applied in a very diverse and complex environment making it challenging to identify standard functionality to help guide standards development.

Thanks again to Rob, for his insightful post and excellent responses to all questions, and Richard, Gavin, Martin (RedSevenOne), and Pat, for making this a great exchange, and other folks who have been reading

along. Please join in again on October 3rd when David Wiley posts on "Open Content as Infrastructure". The schedule for the series can be found on WikiEducator.[26]

[26] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 17

Content is Infrastructure (David Wiley)

17.1 Introduction - David Wiley[1]

I want to welcome David Wiley and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on October 3, 2007 (eastern U.S.). David will write about the role of open content in open education.

Figure 17.1: David Wiley

David Wiley currently serves as an Associate Professor of Instructional Technology and also the Director of the Center for Open and Sustainable Learning[2] , (C()SL), at Utah State University. He is best known for having coined the term Open Content and creating the first open source-style license for non-software. His work on open content, open education, and informal online learning communities has been reported in many international outlets. His leadership in the open education resource is wildly recognized.

I am very much looking forward to David's posting, which promises to build on the great dialog that was generated during the past months on the Series. Please feel free to comment, ask questions, build on the conversation, and enjoy.

[1] This content is available online at <http://cnx.org/content/m19807/1.1/>.
[2] http://cosl.usu.edu/

17.2 Content Is Infrastructure[3]

NOTE: Author - David Wiley, "Content is Infrastructure". Originally submitted October 3rd, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

Content is infrastructure.

Why would I say such a thing? For three reasons.

First, I wish to point out that content is absolutely critical. In the late 90s, webmasters frequently heard the phrase "content is king." Today the notion is often rejected and replaced with something along the lines of Content is Dead. Community is King Now[4] . In the past I've said I could care less whether or not learning[5] objects[6] were dead or alive. However, to declare content dead in favor of the coolness of community misses the point that content is irrefutably a critical piece of educational infrastructure. Wikipedia says:

> *Infrastructure is generally structural elements that provide the framework supporting an entire structure.... The term "critical infrastructure" has been widely adopted to distinguish those infrastructure elements that, if significantly damaged or destroyed*[7]

If the content base from which we all teach and learn - the internet, textbooks, library books, journal articles, etc. - were 'significantly damaged or destroyed,' is there any way to imagine that this would not 'cause serious disruption' to all education, both formal and informal? It is almost incomprehensible where we would be without content - at best, we would be reduced entirely to purely oral methods of teaching and learning. It may seem childish to point out something so obvious, but content is a critical part of the infrastructure of education.

Second, I want to suggest that we must understand that content is infrastructure before we can see radical improvements in education. Before we can expect large scale educational experimentation and innovation to occur we must deploy a sufficient amount of content, on a sufficient number of topics, at a sufficient level of quality, available at sufficiently low cost. Take the roads (an example of civic infrastructure) as an example. When there are enough roads, going enough places, with enough capacity, and without tolls, we can expect to see significant experimentation and innovation on top of this infrastructure. In the case of roads, we can see people establishing a variety of transportation services (taxis, shuttles), delivery services (food, packages), support services (towing, tire repair), and other services. In the case of content, when there is a sufficient amount of open educational content on a sufficient number of topics at sufficient quality, we can also expect to see experimentation and innovation in localization services (translation, low-bandwidth delivery), accreditation services (degrees, certificates), and support services (tutors, study group locators).

Of course, it costs money to build roads just like it costs money to create content. However, it generally does not cost money to drive on a road, and this encourages people to experiment and innovate in creating services that rely on the roads. We should realize that content is infrastructure in order to more clearly understand that the eventual creation of a content infrastructure which is free to use will catalyze and support the types of experiments and innovations we hope to see in the educational realm.

It's all very Marxist; when only the wealthy can afford access to the means of production (or, in our case, the "means of instruction"), very little innovation will percolate up from the rest of us. But when everyone has free and open access to the means of instruction, we can expect to see large scale experimentation and innovation. As Linus[8] so famously said,

> *And don't EVER make the mistake that you can design something better than what you get from ruthless massively parallel trial-and-error with a feedback cycle. That's giving your intelligence _much_ too much credit.*[9]

[3] This content is available online at <http://cnx.org/content/m19813/1.7/>.
[4] http://www.searchengineguide.com/stoney-degeyter/content-is-dead.php
[5] http://opencontent.org/blog/archives/230
[6] http://opencontent.org/blog/archives/244
[7] http://en.wikipedia.org/wiki/Infrastructure
[8] http://en.wikipedia.org/wiki/Linus_Torvalds
[9] http://kerneltrap.org/node/11

If we want to see education radically improved, we can't architect it. None of us is that intelligent. We have to understand that content is infrastructure in order to start Linus' massively parallel feedback cycle running.

And finally, we have to understand that content is infrastructure to see current "open educational resources" projects and initiatives from the proper perspective. The OpenCourseWares[10] , the Connexions[11] , the GLOBEs[12] , and all the other repositories of open educational resources in the world are critical infrastructure. As such, they are necessary conditions for revolutionizing education. The revolution can not happen without them. However, open content itself is by no means a sufficient condition for the revolution to succeed. So much more is needed! The list above includes only a handful of what needs to be worked on (localization, translation, low-bandwidth delivery, accreditation, degrees, certificates, support, tutors, study group locators).

To say that content, and therefore these projects, are necessary but not sufficient conditions is not to say that content is unimportant. Anything but! Every piece of the system, including content, is critical - as Paul taught the Corinthians:

> *For the body is not one member, but many. If the foot shall say, Because I am not the hand, I am not of the body; is it therefore not of the body? And if the ear shall say, Because I am not the eye, I am not of the body; is it therefore not of the body? If the whole body were an eye, where were the hearing? If the whole were hearing, where were the smelling? But now hath God set the members every one of them in the body, as it hath pleased him. And if they were all one member, where were the body? But now are they many members, yet but one body.*[13]

Content is infrastructure. An important beginning step that absolutely must be completed, and there is much more to follow. If you're reading this post, I invite you to join our host Ken Udas, the other Guest Contributors in the series, and myself in working on creating this infrastructure and innovating on top of this infrastructure to improve education for everyone.

Do I have it wrong? Have I missed something obvious (or otherwise)? Please join the conversation in the comments below.

17.2.1 Comments

17.2.1.1 1. Wayne Mackintosh - October 4th, 2007 at 11:15 am

Hi David, Great post. I commend your courage in this world of constructivism to profile the humble but decisive role of content in our educational infrastructure.

Education - as a discursive and social endeavour needs something trigger and carry our learning conversations. Education does not take place in a vacuum and in our digital world, our conversations - like this one, become the content for further discussion.

Viva (free) content - Viva

17.2.1.2 2. Ken Udas - October 4th, 2007 at 11:16 am

Hello, First, David, thank you. There are a lot of directions to take this. I have a quick question to start things off that I know is full of twists and turns. I am not sure how far we want to take the physical infrastructure analogy, but I will push it just a little further. Roads and other types of public physical infrastructure tend to be funded from public sources (general taxes, road taxes, gas taxes, etc), use-based sources (tolls), and volunteer sources (adopt a highway). I would assume that this combination of resources sort of represents the way we look at appropriate cost allocations. We see the roads as a public good so they should be supported by various governments (federal, state, local) through taxes, it is also recognized

[10] http://ocwconsortium.org/
[11] http://cnx.org/
[12] http://globe.edna.edu.au/globe/go
[13] http://scriptures.lds.org/en/1_cor/12/

that some cost should be assigned differentially to who is using a specific roadway, while others see benefit in keeping the road clean in their community (by adopting a highway) and are willing to take care of that for a number of reasons.

- Here is the question. To help ensure that "content" infrastructure is of high quality, functioning to enable rather than constrain education and innovation, how might we think about resourcing "content infrastructure" in a sustainable manner?
- Here is another question. Are there things that we can do that will change the way we think about resourcing content (work processes, licensing, the nature of education & education providers, our identities as educators, etc.)?

Thanks!

17.2.1.3 3. Wayne Mackintosh - October 4th, 2007 at 6:45 pm

Hi Ken, Good questions.

I'd like to add into the mix Elinor Ostrom's 2X2 matrix classification between rivalrous versus non-rivalrous and excludable versus non excludable goods. (Frome Governing the Commons, 1990).

See for example:

Rivalrous versus non-rivalrous goods [14] and

Excludable versus non-excludable[15] goods.

The matrix then classifies for types of goods:

- Common-pool resource (i.e non-excludable and rivalrous - eg the classic tragedy of the grazing commons, and a hard copy library book. When one patron has the book, another patron cannot take the book out at the same time)
- private goods (i.e. excludable and rivalrous - eg commercially sold book)
- toll good (i.e. excludable and non-rivalrous - eg paid subscription to an online journal. Digital copies are infinitely accessible)
- public good (i.e. non-excludable and non-rivalrous eg knowledge or free content.)

The point being that content can assume different forms and depending on how the content is stored (hard copy versus digital) and the licensing that is used (excludable versus non-excludable) will determine whether the same content is for example a private good or public good.

Consequently I think we need to think about different resourcing models and a range of value propositions depending on where the content sits in this 2X2 matrix.

Without going into too much detail - I think that there are things we can do to think differently about resourcing content in education. For example, the most significant cost driver in developing high quality asynchronous learning materials is the academic authoring time. By sharing development cost over many institutions, the development of free content (public good resources) can lower the current costs of production for individual institutions. Savings in cost of production is a mechanism to resource more free content development.

17.2.1.4 4. RedSevenOne - October 4th, 2007 at 8:15 pm

David – Seems to be a regular occurrence here at Camp One these days,

One – News comes in, get put on the Big Board

Two – 'Work' Stops, Discussion starts and begins to heat the floor up

Three – The Sound Pressure meter goes off, the alarm sounds and everyone disengages and goes to the Basket Ball court.

[14] http://en.wikipedia.org/wiki/Rivalrous

[15] http://en.wikipedia.org/wiki/Excludability

I first came in contact with Terra Incognita after Gavin Baker's 'Open Access Journal Literature is an Open Educational Resource' post (Section 15.2). and first introduced Camp One with this response posting as well making on to the much coveted, even by those who don't know it exists yet, 10/10++ rating on the Camp One Way Cool Scale (comment 3).

134 Words in and finally I will get to the point. There are constant discussion by people who are wondering why Camp One is so successful. The answer to this is a simple one and speaks to the ethos of this post. There is no program per say, no dictated vision, just a set of ground rule and an infrastructure built to support those rules. Simply put, the camp is the program, from which has grown the community of learners. It is the content of what goes on here which takes precedence over the infrastructure. To be sure, we have a crack team of Techno Humans, most of them 'Recovering' Hackers who have seen a beneficial use for their creativity. But we are a community first and foremost and while there are a few walking through the door, who don't grasp the concept, the building sways them fairly quickly.

Accepting responsibility for a bit of 'All about us'

Regards Martin

17.2.1.5 5. colecamplese - October 6th, 2007 at 6:52 am

David– Great post and a very important topic here on our campus. There are lots of smart people doing great things with platforms all over the University — finding new ways to engage students with blogs, social networks, and all sorts of other great tools. What I see lacking is the innovative use of these tools as instructional design and delivery tools. Faculty who routinely use these environments use them in an activity form — not as the vehicle for delivering course content. They use them to engage students in and out of the classroom, but not to design and deliver courses ... perhaps when they start to understand more fully how the environments work we'll see a new breed of content exposed via the social web.

What frustrates me is the notion that our own eLearning spaces are both closed and built on old infrastructure. I have many conversations all over our University with people who say open is good, but when push comes to shove, they ask us to keep it closed. A perfect example is our use of iTunes U. This is an environment that begs to be open so anyone can come in and subscribe to a course podcast and learn. Our faculty produced over 2300 course podcasts last Spring, but there are exactly 12 of them that are open to people outside of a given class. That is no different than our LMS universe.

I agree that content is infrastructure, but there is a philosophical component that goes along with this — that learning designers and faculty alike must embrace the notion of openness in their design. I think we are on the verge of getting to a more open culture as it relates to content ... a place where learning designers and faculty are trying to understand how to use new spaces to reinvent the delivery of content. I saw this about 10 years ago — as people were just climbing the Internet mindset. Will it lead to an environment that promotes the use of emerging spaces in the delivery of University content? I hope so. We just aren't there yet, but given the right context it can become the norm.

17.2.1.6 6. Ken Udas - October 6th, 2007 at 8:09 am

Taking my lead from Wayne, Martin, and Cole, it seems to me the question:

> *Are there things that we can do that will change the way we think about resourcing content (work processes, licensing, the nature of education & education providers, our identities as educators, etc.)?*

is pretty reasonable. That is, there is a cultural mindset that that needs to develop on campuses that will enable and promote the development and distribution of free content. Eventually, one way or the next, the "cultural mindset" would pervade the organization, influencing not only the commitment of faculty and learning designers, but also technology managers, marketers, legal counselors, academic administrators, managers, etc.

The level to which the "cultural mind set" needs to pervade the organization (community) will of course vary from university to university depending on a lot of things. It seems to me that one cultural norm that

could be pretty debilitating is the assumption of competition over community. I have noted a feeling in higher education (not limited to the US) that we are competing with each other at an institutional level. If this is an organizational orientation, there is an understandable impulse to treat internally generated learning resources as either private goods or toll goods (see Wayne's comment above).

If my assumptions, assertions, or conclusions are spurious, please question or correct them. Until then I am left asking myself two questions:

- Is it possible to harness the competitive impulse to promote free and open content?
- What are some of the differences between institutions that have adopted free and open educational resources as part of their identity and those that have not?

As a final note, I have a feeling that organizations that engage in free and open educational resource development principally (or solely) to 1) gain some sort of competitive advantage, or 2) raise institutional profile, are starting on an unsteady foundation in the long-run.

17.2.1.7 7. colecamplese - October 6th, 2007 at 8:32 am

So in light of these questions, are we prepared to ask ourselves (and ultimately our organizations) if open content is a strategic goal (on any level) for us? The "us" is not just the World Campus, but our Institution ... there are pockets making a go at this right here on our campus — in the past the College of IST and the Online IST curriculum was mostly open, and currently the College of Earth and Mineral Sciences are making it happen Where do we stand and where do we want to be? Perhaps the most important question is how do we intend to get there?

17.2.1.8 8. David Wiley - October 6th, 2007 at 11:02 am

Ken, great questions! Let's see what I can make of them...

> *To help ensure that "content" infrastructure is of high quality, functioning to enable rather than constrain education and innovation, how might we think about resourcing "content infrastructure" in a sustainable manner?*

I think your discussion of taxes, tolls, and volunteers is quite interesting! I'm not sure that tolls will be possible in the open content world, however. To implement a toll on a road, you generally either (a) forbid traffic unless they pay the toll (this amounts to commercial content) or you (b) levy a toll on certain kinds of traffic like big trucks (this amounts to discrimination against certain users or uses of content). While discrimination is prevalent today in the open content world (e.g., use of the CC-NC clause), we should be planning for a future in which this discrimination doesn't occur. So perhaps our long-term sustainability strategy should focus mostly on taxes and volunteers.

In reality, taxes pay for the development and heavy maintenance of roads. Volunteers keep in-tact roads looking neat and tidy, but volunteers neither build new roads nor fix major structural problems (e.g., fill potholes). I think that for sufficient quality, quantity, and coverage of roads to exist, we will likely need to depend on a common recognition that educational infrastructure is just as critical as transportation infrastructure, and tax money being put to this purpose. Volunteers can be wiki-gardners who pull the inevitable weeds and keep things clean, and they will play an important role, but I don't know if I believe that we can depend on volunteers to build out ∼and maintain∼ this critical infrastructure.

> *Here is another question. Are there things that we can do that will change the way we think about resourcing content (work processes, licensing, the nature of education & education providers, our identities as educators, etc.)?*

Yes! And the primary thing is thinking about content as infrastructure. Once we realize how critical this infrastructure is to enabling progress and competitiveness in our current world, we will be willing to invest in it.

17.2.1.9 9. RedSevenOne - October 6th, 2007 at 1:55 pm

David, Ken and All – I have introduced this notion in a couple of other venues and perhaps the time is right to do it here. Open Access is seen somewhat a a thorn in is side of the status quo except what we see as the said quo today is not as it always has been. There was a time when Science in all its iterations was practiced for the sake of Science, when people on the streets would hear the sound of 'Eureka' shouted from the window of a dingy cell in a musty pile and another discovery born. It has only been since the notion of profit was introduced to the whole area of the dissemination of knowledge has the issue of paying to read about the discoveries, in many cases the public has payed to create, has the issue of how it is paid for become an issue.

May I suggest a paradigm in which all information is made available freely online, and if a hard copy is require that a Print On Demand, pay per page regime be established. We are looking at just such a strategy at Camp One for use in our outreach. Our situation is unique in that access to printed copy will be funded to 100% internally, but we are looking at a system which can produce in colour at high speed with a net cost of $0.03/Page which if we were to double that figure would provide funding for a compensation pool.

I think the major issue for expanding this scenario is that it goes against the status quo which has yet to understand that technology is close to supplanting its perception of worth. The argument that Open Access will reduce the quality of material given the nature of Peer Review in conventional journals is a specious one. Both PloS and arXix have proven that.

We have a unique situation in that the whole focus of what we do is content oriented, which is derived to a high degree from Open Access. The infrastructure is simply the means, and when we encounter a goal that can't be achieved with what we have in place, we get more. It would be my hope that we will one day return to a Science for the sake of Science model, without the mold of course.

Note to 'colecamplese' - I suggest that at Penn State as at many other institutions, the Arlo Guthrie, 'Alices' Restaurant' ethic applies – If they discount your first proposition as the words of a crazy person, what will they do when the whole movement comes through the door? Lead, Follow, or Get out if the way.

Change It Comes

17.2.1.10 10. Wayne Mackintosh - October 6th, 2007 at 2:54 pm

Hi all,

RedSevenOne, I agree with your sentiments of generating and sharing knowledge for the sake of science and society. Great to see that there are still a few of us around.

I concede that my context working to widen access to education in the developing world is very different to many folk reading this blog. I'm somewhat critical of a pay-per-page model if you want to get a hard copy. For the overwhelming majority of people in the developing world, Internet connectivity is an expensive luxury. If "knowledge" resources are free - this freedom should extend to being able to reuse, modify and redistribute the resource without restriction including the option of generating your own print version.

This is not to say that those of us supporting the freedom culture are against the freedom to earn a living from free content. In fact we should encourage this. In my view we should promote publishers and local business entrepreneurs to add value through services and expanding distribution channels using free content. (Not unlike the RedHat Linux model).

By way of example, WikiEducator is currently funding a project to develop an open source extension for MediaWiki software for users to generate their own basket of selected articles and by clicking on a button - the software will spit out a local pdf version on the desktop. This is pretty significant because any free content project using Mediawiki will be able to implement this technology. Depending on whether we can generate further funding from the international donor community, we aim to extend this functionality to export content in Open Office format which would enable faculty to customise free content without restriction. Think about it - the English Wikipedia has more than 2 million articles, and with this pdf feature we will widen access to the largest encyclopedia in the history of humankind in print format for those who don't have access to the Internet - without the need to pay for a hard copy! So reluctant and conservative faculty

are free to stick with closed proprietary content. Others will embrace the idea of working on the development of free content - that's our mission at WikiEducator[16] - to build a free curriculum by 2015 .

Ken - I think that you're absolutely right, we need to think creatively about the barriers associated with shifting the "culture" of the academy regarding free content. Personally - I don't think competition is a bad thing in higher education - it does contribute to quality. Turning to the business world - the co-opitition model has been pretty successful. The notion of collaborating in order to compete better is not an alien business concept - Why are we reluctant to embrace this in the education sector? There is a strong value proposition in the free content model to produce learning resources faster, better and cheaper when compared to the closed model. A free content license permits individual institutions to add there own unique services to differentiate themselves in a highly competitive education sector. In my view, this is healthy.

The free software movement is a very "competitive" endeavour. Anyone is free to fork a software development and if they succeed in building better code that serves the needs of users, the community will grow. Forks that don't do things better will not survive. A natural eco-system with strong routes in competitive behaviour. Similarly - I suspect that this will evolve in the free content movement.

I'm very optimistic about the prospects of the free content movement. I already see early signs of the critical mass required to sustain this global endeavour. We have the leverage principle on our side - for example, we don't need thousands of faculty to build a free curriculum for a freshman course in education or chemistry. Ten or fifteen dedicated educators around the world could do the job. My point is that a free curriculum is certainly plausible. The strategic question for most organisations should be - How will the free curriculum impact on our existing business models ?

Ken - thanks for keeping this initiative going - An engaging and compelling blog.

17.2.1.11 11. Ken Udas - October 11th, 2007 at 5:11 am

To David's point about taxes and tolls. There are different types of taxes and I wonder if this is important. That is, there are general taxes that are levied that do not directly relate to where the government invests the taxes that they have collected. For example, some general income taxes are spent on maintaining roads, even if the person being taxed does not use roads. I suppose that there is the assumption/rationale is that everybody benefits from public roads. There are also taxes that act something like tolls. For example, there are road taxes that are levied because you own a car (sometimes based on the market value of your car) and gas taxes that are earmarked for investment in roads. Here I believe is the assumption that when drivers pull up to the gas pump, they will use their gas purchase to drive a vehicle on the road. These two taxes, although more indirect than a toll for road use, are more directly based on a direct cost and benefit rationale thank more general taxes.

I am not sure if this is important, I just thought that it might be worth noting.

17.2.1.12 12. Ken Udas - October 11th, 2007 at 5:19 am

So many directions this conversation could go. I am sorry to have dropped out for a day or two. Wayne, thanks also for your support it is of course the contributors to the Series that make it of any value.

It seems to me that we have an "economic" puzzle to solve here. Continuing with the physical infrastructure analogy and the questions about competition, our challenge is to create an environment in which there is more value to institutions and governments (folks who can levy taxes) to invest in a shared, open, and free content infrastructure than to invest in close infrastructure. That is, invest in public libraries rather than bookstores (sorry for mixing analogies). Perhaps the appropriate extension would be investing in public roads rather than private ones, or simply not investing at all. This could be done in a few ways, by either centrally funding the creation of content or creating incentives for distributed creation and contribution. Are there other options???

Simultaneously, the trick will be to encourage volunteerism by reducing barriers to contribute and creating non-financial incentives, perhaps through recognition of some sort. For example, I think that WikiEducator

[16] http://www.wikieducator.org/

[17] and the OpenOCW[18] initiatives are great steps to reducing some barriers, but there are of course organizational barriers (refer to Cole's comments above) which are both structural (unfriendly licensing requirements, unfriendly organizational policy, unfriendly work flows, use of a lot of 3rd party proprietary stuff, etc.) and cultural/attitudinal ("what is mine is mine and it is so good, you will have to pay for it", fear, uncertainty, etc.) that exist in universities. Are there others?

In any event, here is the punch-line to this comment. Suppose that we get the "economics" right and we end up with a vibrant community of governments, institutions, NGOs, foundations, individuals, etc. contributing to an open and free content infrastructure, on which terms do we compete (see Wayne's comment above about co-opitition) and how does this impact education? Perhaps the second part of this question is more interesting than the first.

17.2.1.13 13. RedSevenOne - October 11th, 2007 at 1:30 pm

Ken, First off, Here Here!! Well said.

To your question – After we get the economics right. . . how does this impact education?

You will know that you have had an impact, that positive change has occurred when you walk into the lunch room of an Inner City school and hear young people talking about 'The guy who invented the Ipod got a Nobel Prize', this happened to me yesterday. While the facts are a bit wonky and the context is a bit off, what it meant was the kids had being paying attention to a blog posting I had flagged during an outreach session that morning while discussing Nanotechnology.

Out of that exchange, the original seven I had been talking to in the morning, swelled to seventeen and we went further into discovering exactly what he real story was.

We researched the archives and found the original reporting, [1991-94] and the sound of 'Wow' could be heard around the room. Not only was the content relevant to the learners, had a context relating to something in their reality, the process of getting the information show them tools they could use for further exploration.

I have suggested before and, though reticently, will repeat it here. We need to get on with the job of opening up the access so everyone has a chance to learn, and worry about how it gets payed for later. Our 'Pay per Page' concept will likely work for us, even if it heavily subsidized, and it may even work on a broader institutional context, however, I believe that One Size Fits All will not work for Open Access, just as its efficacy has failed in the educational field as a whole.

17.2.1.14 14. Ken Udas - October 14th, 2007 at 7:24 am

Martin, Hello. I agree. I think that most of us want to enhance access and I suppose we all can do our parts individually. That is, if we individually have copyright to the work we create, we can license it and distribute it ways that meet our needs and help lower barriers so everybody has the chance to learn, as your rightfully iterate. It becomes more of a challenge when you are trying to create an environment in which a lot of productive capacity is being leveraged.

For example, those of us who manage organizations that produce a lot of digital resources used in online or hybrid courses are frequently managing and are trying to transform legacy systems in our institutions to reduce barriers to opening educational resources. Cole (see comment above) identified the behavioral manifestation of some cultural issues. Three artifacts that we have to work with that raise and lower barriers to leveraging productive capacity include:

- **Work Flows:** Are the work flows in the organization conducive to making content open and free? This includes content management.
- **Rights Waivers:** Does the work unit responsible for "fixing content to a digital storage devise" require that the author/creator waive or transfer their copyright to the university? If so, do the terms of the waiver provide the opportunity to open content?

[17] http://wikieducator.org/Main_Page
[18] http://openocw.org/

- **University Licensing:** Does the university of a policy around licensing "open" and libre content? If so, is it standard (one of the Creative Content Licenses, the newly evolving "Libre" license, etc.) or an internal license?

There are a lot of other issues, some of which have been reference in previous posts, but the three identified above frequently reflect the organization's cultural commitments as artifacts whose impact can be significant.

Cheers, Ken

17.2.1.15 15. joelgalbraith - October 22nd, 2007 at 12:39 pm

A shout-out from the "peanut gallery".

I can only assume there are others out there like me, who are following the discussion with interest, but have not yet chimed in. There's a great deal to process here, and I dasn't contribute till I've thought this through some more.

Just a note to acknowledge the interesting views shared here from–what I hope are–a silent majority (not that they should remain silent, but rather that I hope more are following the discussion than appear to be ;-)). -JG

17.2.1.16 16. tanuj Says: November 8th, 2007 at 3:11 am

this basically assertions a proposition with which I am in basic agreement. "If we want to see education radically improved, we can't architect it. None of us is that intelligent. We have to understand that content is infrastructure in order to start Linus' massively parallel feedback cycle running.

Regards, Tanuj

17.2.1.17 17. On Writing "Learning Content" in the Cloud « OUseful.Info, the blog... - November 24th, 2008 at 1:12 pm

[...] course...)? So why not use them? (cf. Am I missing the point on open educational resources? and Content Is Infrastructure.) Of course, if the aim was to manufacture a "trad book" according to a prespecified [...]

17.2.1.18 18. More on missing the point... - February 2nd, 2009 at 8:10 pm

[...] are for pretty much self-evident. I'm reminded of David Wiley's catchy phrase content is infrastructure... I was trying to quickly restate a question that had been posed to me, one that had left me [...]

17.2.1.19 19. Content - February 2nd, 2009 at 8:35 pm

[...] and 'interaction' (I will refer once again to David Wiley's notion of content as infrastructure), this wonderful riff from Gardner Campbell (and all the links downstream from Udell and others) [...]

17.3 Summary[19]

"Content Is Infrastructure," the 14th installment of the Impact of Open Source Software Series, was posted on October 3rd, 2007, by David Wiley who currently serves as an Associate Professor of Instructional Technology and also the Director of the Center for Open and Sustainable Learning[20] , (C()SL), at Utah State University. Thanks David for a great posting!

In his posting David starts by suggesting that "Content is Infrastructure," and then makes three related statements (relative to the development of education):

[19] This content is available online at <http://cnx.org/content/m19810/1.1/>.

[20] http://cosl.usu.edu/

1. I wish to point out that content is absolutely critical.
2. I want to suggest that we must understand that content is infrastructure before we can see radical improvements in education.
3. We have to understand that content is infrastructure to see current "open educational resources" projects and initiatives from the proper perspective.

David used physical infrastructure in the form of public roads as an analogy for content as digital education infrastructure. He suggested that as roads allow for development and innovation, content (without toll fees) allows similarly for innovation to take place in education. Unlike roads though, content infrastructure is much more effectively developed through massively parallel, trial, and error processes than through a formally architected approach.

17.3.1 Comments

David's "roads" analogy generated a fair amount of discussion leading to extension of the analogy and discussion about the "economics" of creating and sustaining content infrastructure. Issues such as the difference between physical and non-physical assets, rival and non-rival goods, the impact of "tolls" or use fees, barriers, and incentives were discussed.

There was also some dialog about how individuals will show interest in and verbally support open content, but when "push comes to shove" few will actually make their resources open. Issues around the competitive nature of higher education were raised. It was noted that the free software movement is quite competitive and that competition seems to work well in that domain, which led to some questions about using the competitive impulse at many universities to promote open and free resources.

It was also noted, early in the discussion that David's "content as infrastructure" approach to OER was refreshingly direct and pragmatic.

Thanks again to David, for his interesting and insightful post and responses, and Wayne, Cole, and Martin (RedSevenOne), for making this a great exchange, and other folks who have been reading along. Please join in again on October 17th when Gary Schwartz posts with persepctis from a OSS project manager. The schedule for the series can be found on WikiEducator.[21]

[21] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 18

Leading a University Open Source Project (Gary Schwartz)

18.1 Introduction - Gary Schwartz[1]

Figure 18.1: Gary Schwartz

I want to welcome Gary Schwartz and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on October 17, 2007 (eastern U.S.). Gary will write from the perspective of a open source project manager.

Gary Schwartz currently serves as Director of Communications & Middleware Technologies at Rensselaer Polytechnic Institute, has over 25 years experience in Higher Ed IT, first as a programmer, and subsequently in management. His present responsibilities include centralized email, directory, and web services and middleware, and web software development. He is the project manager and spokesperson for Bedework[2] , the open source, enterprise calendaring system for Higher Education.

I am very much looking forward to Gary's posting, which promises to build on the great dialog that was generated during the past months on the Series. Please feel free to comment, ask questions, build on the conversation, and enjoy.

[1] This content is available online at <http://cnx.org/content/m19808/1.1/>.
[2] http://www.bedework.org/bedework/

18.2 Leading a University Open Source Project [3]

NOTE: Author - Gary Schwartz, "From the Other Side of the Counter, Leading a University Open Source Project". Originally submitted October 17th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

Like Forest Gump who found himself a shrimp boat captain, we find ourselves leaders of an open source software (OSS) project. It happens.

Our open source project is Bedework (pronounce it as you would beadwork), an open-source, enterprise calendar system for higher education designed to conform to current calendaring standards. The "we" are the Communications & Middleware Technologies unit at Rensselaer Polytechnic Institute of which I am the director.

Unlike some other contributors to this series, I am not a deep thinker on the topic of open source. Reviewing material for this posting, I came across a document I wrote four years ago for my management justifying our participation in the University of Washington's UWCalendar project.

> *"Whereas many university people enjoy a spiritual affinity for open source software, our interest is more pragmatic. As a campus-wide development and support group, technologies and products which have no license or usage fees are critical to providing solutions which can be deployed and reconfigured with impunity. Our web development foundation is largely built atop products and technologies which have no usage fees whatsoever, allowing us to deploy as many instances, servers, CPU's, etc as might prove to be necessary over time."*

Recognizing that I would feel more comfortable if I had only one foot firmly wedged in my mouth, I continued,

> *"We are anxious to contribute to the project (UWCalendar) because:*
>
> *1. We feel our work will make the product more attractive to other universities, hopefully resulting in many more of them using and developing this software.*
>
> *2. The University of Washington has done most of the work which we have benefited from. Reciprocating is the right thing to do.*
>
> *3. Rensselaer relies heavily on and benefits mightily from open source software but seldom contributes to open source. We believe this contribution will enhance Rensselaer's reputation in the area of software development."*

Our four year foray into the world of open source, two years working with the University of Washington, and the last two as leaders of the Bedework project, have had a profound impact on my views about open source. I agree with much of what Pat Masson and Rob Abel have said in this series. I have come to appreciate the message of the Mellon Foundation's Chris Mackie [4] on Cyber Infrastructure sustainability as well as the "fallacy of the field of dreams."

The perspective I have to share on open source software in higher education is that of trying to build a modest open source project to sustainability. In the process, we have learned a lot about ourselves and our own university.

I have struggled somewhat to find the right voice for this piece as it is intimately tied to our experience with the open source project we lead—Bedework. Whereas one of the lessons of managing a fledgling open source project is "always be closing," that is, trying to sell your project, bowdlerizing the content to remove all references to Bedework eclipsed my skill as writer.

[3] This content is available online at <http://cnx.org/content/m19774/1.4/>.
[4] http://www.si.umich.edu/cyber-infrastructure/bio_mackie.htm

18.2.1 The Back Story

Some years ago, our CIO tasked my unit to provide a public events calendar for our university. Although there were a number of calendaring/scheduling systems on campus, public events were announced and managed through e-mail, web pages, and print publications. There was no explicit budget for this project, so buying a commercial product was not a viable option. Our choices were to write it ourselves, use software already produced by someone else, or collaborate with other organizations to produce this software. We expressed the objective this way:

> *"The software should be used and developed by multiple universities. There are three dominant products in university calendaring today including homegrown. Many institutions of higher education have chosen to implement their own calendar systems, some of which are very fine. Unfortunately, as far as we know, no two schools use, or collaboratively develop, the same calendar software. Rensselaer is interested in contributing to a university-specific calendaring product but we already have too many projects chasing too few people. We would prefer to have circumscribed, intermittent calendar development projects rather than having continuous development and support duties. An open source project potentially allows us to meet these objectives."*

We continued to enumerate the following requirements:

1. Implementation is consonant with our core competencies in Java/J2EE programming, XML, and web interface design and construction.
2. Open source – no license or usage fees
3. The ability to distribute administration and control to the event owners themselves is crucial in a university environment.
4. The code must provide complete, well-defined APIs which are scrupulously honored, with no local dependencies (authentication, policies, etc.) The packaging must allow competent professionals to easily install the package and to get a demo version running with minimal confusion and frustration.

(With respect to the last point, it is clear, looking back, that high standards are not especially useful unless you can hold others to them.)

RPI took a look at the University of Washington's UWCalendar, whose mission statement, says, in part,

> *"UW Calendar will be a total calendaring and events system for institutions of higher learning. ...UW Calendar will be open source and platform independent. It will use existing open standards. It will support integration with other systems and middleware, ... such as uPortal and Shibboleth. It will be modular... and extensible ..."*

As the University of Washington's goals were consonant with RPI's, RPI joined the UWCalendar development team in June 2003. RPI's initial motivation was to deliver value locally to the RPI community while at the same time making UWCalendar attractive enough to other universities that they would adopt the software and contribute to its development. RPI had hoped that UWCalendar would eventually have a substantial user and developer community within higher education.

Rensselaer's initial efforts focused on restructuring some of the code to more cleanly separate the server (back-end) part from the web client (front end). This allowed us, among other things, to easily provide a "skins" capability. The UW calendar became more modular and amenable to using other client interfaces that other developers might care to build. Two of our goals going into the project were to leverage our expertise in Java, J2EE, web client interfaces, and to avoid becoming calendar experts, leaving that role to the University of Washington developers.

In December 2003, UWCalendar was made available at RPI. Over the next 18 months, we played an increasingly large role in UWCalendar development. The University of Washington really developed two versions of UWCalendar, the open source version which we collaborated on, and a local version, based on the open source version, which integrated with their locally developed portal, providing significant value to

the UW community. Their obligations to the local UW version made it increasingly difficult for them to contribute to the open source version.

In 2005 we became convinced that UWCalendar would not achieve its ambitious goals and began development of a rearchitected, hibernate-based successor. After much soul searching, in September 2005, we told our colleagues that we would be working on a new version, and we announced a preview release of Bedework in December 2005, making us leaders of a new open source project. The first production version of Bedework, version 3.0, was released in March 2006.

Bedework's design goals and capabilities include platform independence (via Java/J2EE), database independence (via hibernate), internationalization, standards (RFC 2445, CalDAV) compliance, portlet (JSR168) support, no license fees or restrictions (BSD style open source license) fine-grained distributed administration, support for public events, personal calendars, and departmental calendars, easy to install code with complete, well-defined APIs, no local dependencies, support for external authentication (such as LDAP, Yale CAS, etc) via container authentication, full access control via the CalDAV model, XML and XSLT based web clients allowing for a number of capabilities, such as localization and multilanguage support and RSS syndication.

Bedework is probably in production use or in some stage of production deployment at about two dozen institutions of higher education.

18.2.2 IP – ours and others

As an independent open source project, we needed to decide early on how to handle the intellectual property issues associated with Bedework. The two pressing questions to be decided were the terms and conditions of the Bedework license, and the terms and conditions of the Bedework contributor's agreements.

Although the case could be made that Bedework was only the logical heir to UWCalendar and not a derivative product, we weren't sure what it meant to make such as a case, or how much work it would prove to be to make such a case. Consequently, we decided to pretty much adopt and adapt the terms of UWCalendar, allowing the Bedework source code to be used for any purposes, including commercially, as long as acknowledge is given. Having to choose from the large number of open source licensing terms was not an appealing prospect anyhow.

When we were initially considering contributing to UWCalendar, we bridled at the notion of allowing anyone to make money from our work. This was clearly not a well-reasoned response as no one was exploiting UWCalendar commercially, or had shown any interest in doing so. We discussed the issue with the UW developers and they told us it was unlikely that their university had the resources or interest in policing a more restrictive license. Over time we have come to appreciate that the license needs to serve as an enabler to adoption, and that commercial adoption was perhaps a sign of success, not something to be feared.

The contributor's agreement is interesting with respect to the renewed interest in higher ed in exploiting their intellectual property commercially, and in protecting their IP. Specifics aside, it has become increasingly difficult at some universities to sign contributor's agreements in the wake of this very protective approach to IP. We would likely have more difficulty today signing the same contributor's agreement we signed four years ago.

We have received signed agreements from somewhere between six and twelve organizations, however.

18.2.3 Open Standards

Standards compliance is the key to Bedework's success - present and future. However, standards compliance is a double-edged, possibly triple-edged, sword.

In the name of standards compliance, there are potentially useful features we have not implemented because they would not be standards-compliant and would impede interoperability. Sometimes we simply have not brought enough ingenuity to bear on the problem, but in other instances there does not appear to be a way to have our standards cake and eat it too. And sometimes, we discover that we are not purer than Caesar's wife, and we are not quite as standards compliant as we have advertised.

Standards evolve and new standards come into existence. In our relatively brief history as calendar developers, the IETF began work on RFC2245-bis, an update to RFC2445, "Internet Calendaring and Scheduling Core Object Specification (iCalendar)," and published RFC4791 "Calendaring Extensions to WebDAV (CalDAV)," all requiring changes to our source code.

In his earlier posting, Rob Abel posited that "... Standards organizations are pretty much the only way to get a level playing field when it comes to new open source applications for learning – however, that won't happen unless the open source projects/communities are active participants." We are active members of CalConnect, the Calendaring & Scheduling Consortium, as are Mozilla, the Open Software Applications Foundation (OSAF), the Open Connector project, as well as about 20 research universities, commercial vendors and other companies. Although CalConnect is not a standards setting body itself, much of its work is devoted to standards development and interoperability testing. Active participation by both the open sourced developers and academia in these processes has benefitted both these communities and the resulting standards.

18.2.4 Building community, contributors = sustainability

Our open source leadership is still evolving, with room for improvement. We have incorporated contributions from some, and from others we have contributions which we have not yet incorporated, something we need to address.

In Scott Rosenberg's "Dreaming in Code," Rosenberg says that in Eric Raymond's "The Cathedral and the Bazaar," Raymond identified two key prerequisites ... and the rise of a cooperative ethos built around a leadership style like Torvald's that encouraged newcomers, welcomed contributions, and strove to maximize the number of qualified participants." Whereas Linux has a place in the open source pantheon that Bedework will never assume, the ideal of the "cooperative ethos" described above seems to be worth striving for. As I said, we have much to learn in this regard.

We judge Bedework's success not by whether it is the best calendaring product, whatever that might mean in a given context, but whether viable and growing user and developer communities within higher ed establish themselves. Both Bedework communities are growing but they have not achieved critical mass.

From the outset, we intended to develop Bedework with no RPI-isms or RPI branding. The name bears no relationship to our institution, nor does the code have any special awareness or consideration for the computing infrastructure at RPI. If we had not these objectives in mind from the beginning, I think it would have been very difficult to "sanitize" the code and/or design at some later time.

We recognized early on the world may not beat a path to your door if you build a better (or perhaps "good") mousetrap. We have invited and hosted developers from other universities deploying Bedework, or thinking about deploying Bedework, and conversely we also sometimes invite ourselves to other universities to speak with them about Bedework. We also make ourselves available for consultation via telephone and e-mail. As there is no marketing, administrative, or support staff, the core development team assumes these tasks as well. For any number of obvious reasons, this is not really a very sustainable model long term, but I think it continues to be an important strategy now.

However, some very important signs of sustainable community are becoming evident. Users on the mailing list are starting to answer questions posed by other users, and others have developed, and shared back with us, solutions for earlier Bedework issues such as Oracle compatibility.

When and how to migrate to broader, more inclusive form of governance of the project is a question we will undoubtedly need to address sometime in the next twelve months. As the number of adopters has grown, the Bedework roadmap has become more explicitly influenced by the explicitly stated requirements of this growing community.

18.2.5 Staying on the right side of Dilbert

Although it is sometimes easy for those of us in academia to sometimes speak derisively of commercially produced software, over time any even modestly successful open source software project will be judged by the same standards as commercial software.

Despite our best efforts, we have missed almost every release deadline we have set for ourselves. In our December 2005 announcement of first preview release of Bedework 3.0, we stated the official release would be the next month, but it fact the official Bedework 3.0 was actually four months later, not the one month promised. We have subsequently improved our release performance, but vacations, illness, unanticipated local exigencies, difficulty choosing and honoring "freeze" points, and bugs found during final testing still contribute to missed release dates.

We do periodic Google searches on "Bedework" to ascertain who is saying what about Bedework and to learn who might be using Bedework (more on this point later). Among the things we have discovered is that we have been at least once accused of promoting "vaporware" and that Bedework was "primitive – just a fancy events calendar." More gently, we were told, "I'd like to take that time to share some features that are a little clunky that you might want to examine for future upgrades."

Undoubtedly there is a modicum of truth in most of the criticism we receive, sometimes more than a modicum, but as we view our open source work as the confluence of enlightened self-interest and altruism, it still stings.

As Bedework is open source with no licensing fees, we found we do not have a reliable way of ascertaining who is using Bedework and how they are using Bedework. We have been surprised more than once when a Google search revealed a production installation of Bedework that we knew nothing about. We are aware of those who are active on our mailing list or who contact us off the lists, but at this early stage it would be useful in a number of ways to better understand how large the Bedework community is.

We have been invited to respond to RFPs by more than one university. We certainly did not anticipate this, nor were we especially well prepared to respond as we have no marketing, sales or other nontechnical staff. We learned what you might have already guessed, that responding to an RFP is more enjoyable as preparing an RFP, but perhaps not a whole lot more enjoyable.

In the early 1980's, researchers at UCLA developed LOCUS, a distributed operating system,

> *"...that provided a very high degree of network transparency while at the same time supporting high performance and automatic replication of storage. By network transparency we mean that at the system call interface there is no need to mention anything network related. Knowledge of the network and code to interact with foreign sites is below this interface and is thus hidden from both users and programs under normal conditions."*

By the end of that decade, IBM had productized much of LOCUS in their AIX PS/2.

Bedework is not a descendant of LOCUS or AIX PS/2, but Bedework's alleged agnosticisms, DBMS, application server, authentication, internalization, portal (JSR-168), presentation, standards compliance,and scalability, remind me of LOCUS' attempt at true network transparency.

Like Virginia Lee Burton's Mike Mulligan, who had always said that Mary Anne, his steam shovel, "...could dig as much in a day as a hundred men could dig in a week but he had never quite sure this was true," we had not been quite sure that our claims of Bedework's agnosticisms were as true as we intended. Over the last 18 months, the Bedework community have helped us understand where some of these objectives had not been fully realized, and in some cases, have worked with us to make the claims "more true."

18.2.6 Higher Ed aware

We now refer to Bedework as "a calendar system for higher education" rather than as an "institutional calendar," so it no longer sounds like it is a product for correctional facilities.

Emphasis on higher ed does not preclude other uses for Bedework, but it does mean we are cognizant of the needs and constraints of higher ed. Bedework has no licensing fees or other costs, no restrictions on usage or deployment, distributed, fine-grained administration, standards compliance, a public events component, JSR168 portal "friendliness," and flexible authentication and access control, and the working assumption that Bedework be one of many different calendaring systems on campus.

On the other hand, there are other higher ed needs that Bedework does not yet easily accommodate, such as displaying building and facilities hours, or scheduling faculty office hours. Serge Goldstein at Princeton

has written a very sophisticated office hours application that helped me appreciate the complexities and intricacies of addressing this issue.

18.2.7 We're only in it for ... the money?

We have gotten deeply involved, much more deeply, in Bedework than we anticipated when we started collaborating with Washington more than four years ago. However, our overall focus remains delivering value locally (to the RPI community) while at the same time making Bedework attractive enough to other universities that they would adopt the software and contribute to its development.

Earlier I stated that we view our open software work as the confluence of enlightened self-interest and altruism. The self-interest was to provide our university with a public events calendaring system, which we have done. Perhaps it was all enlightened self interest, however.

However, what we have gotten out of this project has transcended the calendaring system itself. Bedework and our participation in CalConnect has reconnected us the larger world and community of university software development.

Our open software project has allowed us meet, collaborate, and be influenced by so many talented people in higher ed around the world, an opportunity that probably would not have come our way if we had not engaged in an open software project. It is an opportunity to show the same kindness to others that the University of Washington showed us by welcoming us into their UWCalendar open software project.

It is an opportunity to continue the tradition of open software development of contributing according to our ability. It is an opportunity to reconnect with our own university by hiring a student to work with us on this project.

Ultimately, Joey "The lips" Fagan, the trumpet player in Alan Parker's "The Commitments," talking about what the band meant after it broke up, said it best, "You're missin' the point. The success of the band was irrelevant - you raised their expectations of life, you lifted their horizons ..."

That's what this open softwareproject has done for us professionally - it raised our expectations and lifted our horizons.

18.2.8 Comments

18.2.8.1 1. Ken Udas - October 19th, 2007 at 3:37 pm

Gary, First, thank you for this great posting. I believe that it is the foundation tram'sfor a very nice case study. I have a very broad question, so feel free to take it where you want to. Has your team's involvement and leadership in Bedework had any noticeable impact on RPI (any particular part of the institution)? Ken

18.2.8.2 2. Patrick Masson - October 20th, 2007 at 10:51 pm

Gary, What I think is most spectacular about the development of Bedework is the development of Bedework. Many projects seem to first, form as a group looking to build a project, Bedework seems to be a project that is building a group: two models undertaken in the development of Moodle and Sakai as applications and communities.

I can remember, in 2003 while at UCLA, listening to Sakai conference calls, sitting in Sakai Conference sessions on Governance, Communications, Visioning, Strategic Planning and Collaboration, yet not allowed into "Sakai Core." Also in 2003, I simply installed Moodle at the UCLA School of Dentistry.

To me, Bedework's approach of letting folks discover the application and use it as they may need (or abandon it) seems more aligned with Raymond's example of scratching that personal itch. Rather than homogenizing or neutering functionality to make an application palatable to all of those who have invested fup front, before development began based on a shared (arguable perceived) need, Bedework, and other needs-based projects will have more committed users who have adopted based on existing functionality meeting understood needs, yielding more focused development and, overall, a better application.

I think this is an important distinction as Higher Ed begins to accept Open Source. One of the often raised issues rejecting open source is the argument that running OSS requires a local developer. This attitude can

easily lead to an "organize-first" approach, where senior administrators feel they must find partners, allocate resources and define objectives before a prject can begin. This front loaded approach requires significant work to keep a project going, none of which is contributing to actual code development.

Consider successful OSS: how many of us that run Apache contribute code back, how about Linux? Imagine trying to get four major universities to define a server or operating system, then build it, versus slowly adapting one based on real-world needs by those who actually find it useful. This is the open source development model, this is how Apache, Linux and Moodle became successful: this is why Bedework will as well.

18.2.8.3 3. GarySchwartz - October 22nd, 2007 at 11:22 am

In response to Ken's question: "Has your team's involvement and leadership in Bedework had any noticeable impact on RPI (any particular part of the institution)?":

The answer is "yes and no".

With respect to the unit I manage, which has responsibility for many projects and services other than Bedework, it has been a little bit of a challenge to integrate the Bedework priorities, many of which are externally driven by installations at other universities, into our overall priorities. At RPI this has resulted, to a certain degree, in an instance of the shoemaker's children going without shoes. It has been hard to find the time to deploy our own Bedework releases in production for our own users in a timely fashion.

Additionally, not everyone in our unit is a Bedework contributor. In that context it is important that Bedework not appear to be our favored or most important project. I can see how it might appear that way from time to time.

I am not sure that our experience with Bedework has had much impact on what we might call RPI's "institutional courage" to run open source software. We have the courage to run Bedework as our public events calendaring system, perhaps the courage to run an open source LMS such as Sakai instead of Blackboard, but not yet the courage to countenance even the thought of running Kuali, although we have the courage to run Banner on Linux, an open source OS.

In December 2006, the Bedework project was honored with a $50,000 Mellon Award for Technology Collaboration (MATC)(see http://matc.mellon.org/)[5] . This was significant in a couple of ways – as a very gratifying validation of the work we had done with Bedework, and it was the first award of any kind that our university had received from Mellon. Not surprisingly, the university is interested in parlaying this award into a larger relationship with Mellon, if possible.

Even though Bedework is RPI's public events calendar, many people on our campus do not know that nor do they care. So the 15 minutes of fame and minor celebrity that Bedework afforded us was lost on them. Additionally, in a research university context, a $50,000 grant is a very small grant. At the provost level, I think there was some confusion about the fuss being made over $50,000, and I can understand why.

We had a similar disconnect when we were directed to speak with one of our vice provosts to discuss calendaring He was more interested in discussing a student developed calendaring widget, and suggested we ask them for their guidance.

RPI recently established the Rensselaer Center for Open Software (http://undergrad.rpi.edu/update.do). We do not really have any significant contact with this group nor do they look to us as experts or even people of interest concerning open source.

In some respects, this is not terribly surprising. The faculty and students are the soul of the university. It is their accomplishments, not those of the staff, that truly bring distinction to the university. Like Jerry Lewis before us, Bedework is more appreciated abroad than at home.

As I noted in my incredibly voluble original posting, the Bedework project has it raised our expectations and lifted our horizons. It reminds me very much of what I call the "Golden Age" of university computing, the 1980's, when RPI was a member of the MTS (Michigan Terminal System) consortium, with about 10 other universities in the US, Canada, and the UK. We had the privilege of collaborating with and competing

[5] http://matc.mellon.org/)

with talented software developers from other universities, and that too lifted our horizons. The Bedework experience has been very positive and rewarding in much the same way.

18.2.8.4 4. GarySchwartz - October 22nd, 2007 at 1:26 pm

Pat Masson's comments about the Bedework approach to building community and organizing our project may be over generous (but we thank him nonetheless) as it didn't really occur to us to go about it another way.

We believed that to be successful our project needed to transcend local objectives and local requirements, be standards-based, and provide enough obvious value that institutions would be motivated to deploy it without having to be "sold". This doesn't mean that we thought the community would build itself, but we felt the community should select itself, albeit sometimes with our guidance.

18.2.8.5 5. Ken Udas - October 24th, 2007 at 4:51 am

Hello, Very interesting stuff, and really important insights. Where do we look within the "academy" to see what type of impact our activities in OSS and/or OER might have? It seems to me that the impact of projects like Bedework might ultimately be through creating community outside of the institution, to which the institution can later refer. For example the stated goal of the Rensselaer Center for Open Software[6] (this link points to a PDF):

> *This is the primary goal of The Center: to provide a creative, intellectual and entrepreneurial outlet for students to use the latest open-source software platforms to develop applications that solve societal problems. Moreover, the Center expands upon our commitment in The Rensselaer Plan to provide "... an undergraduate experience that surpasses all others, combining theory and hands-on experience as the means to educate tomorrow's leaders for technologically based careers."*

is predicated on the cumulative efforts (and occasional courage) of folks like you and many others to take up the lead on OSS projects in environments that might not see the inherent value of such efforts beyond the instrumental contributions it is making to their home institution. Obviously though, on some level, OSS activities strike at an important value within RPI in terms of the Centre's mission, which ties together OSS and support of civil society.

> *The mission of the RCOS is to develop and adapt open software platforms for knowledge and information management in the context of promoting civil societies, both here at home and across the globe. (also from the Centre announcement)*

Here is a sort of pragmatic question, has anybody, students or faculty, at RPI or outside, shown interest in contributing to the Bedework effort as part of their academic responsibilities (class, research agenda, internship, etc.)? Would that be seen positively by the Bedework project team at RPI? That is, I am wondering to what extend an "administrative" calendaring project (representing any OSS project) could also directly serve the academic mission of the host university.

18.2.8.6 6. GarySchwartz - October 24th, 2007 at 3:40 pm

To Ken's question of whether we would welcome the participation of RPI faculty or students in the Bedework project, the answer is a resounding "yes". There are some barriers to participation, which I will address, but one of aspects of community we were looking to address with Bedework was reconnecting with our own local community at RPI.

As an administrative unit with responsibilities for running centralized services, we do not provide direct end user support. Consequently it is sometimes difficult to feel connected with the academic life of the

[6] http://www.rpi.edu/dept/cct/apps/undergrad/resources/PDFs/RCOS_Announcement.pdf

university. We seek appropriate opportunities to work with students, such as on Bedework, as it draws us back in to the primary mission of the university. Working with students has been a very positive experience for us.

Impediments to wider academic participation in Bedework include administrative policies with respect to funding of graduate students, as well as a university –wide effort to provide additional opportunities for undergraduates to participate in faculty research programs, which are for credit.

In some respects our project might be less appealing to students than some other opportunities on campus. Bedework is an enterprise calendaring system in the J2EE environment. It is a little harder to make a contribution immediately in this environment than perhaps with a desktop application, for example.

There are other programming opportunities on campus which are less constraining than working on Bedework. Bedework, exists, has an architecture, an implementation, and an implementation team already in place. The Rensselaer Center for Open Software (RCOS) ask student to propose their own projects, and essentially to manage their projects themselves. The Rensselaer Union, which is student run, and the student government also initiate sprogramming projects for students which are student managed. Some students work for companies in our incubator program (http://www.rpi.edu/dept/incubator/homepage/), and others program as part of their co-op assignments.

Last year we just missed the deadline (our "bad") for Goggle's "Summer of Code", which would have afforded us another opportunity to work with students, albeit not necessarily RPI students. We do have an undergraduate working with us now, for money, not academic credit, and we have been approached just recently by a graduate student who was interested in Bedework. As I noted previously, his participation would likely be informal.

As I reflect on our current situation, I think it is possible that we might have been more successful bringing people from our own campus into the project had we concentrated less on trying to build an external community for Bedework.

18.2.8.7 7. Ken Udas - October 27th, 2007 at 11:52 pm

Gary, This was a very enjoyable post. Although I have occasionally had overall responsibility for IT departments, I have never directly managed an IT service unit. As a general and program manager, have always been supported by IT groups and have depended on their ability to meet program and organizational needs. It sounds to me that the experience that you have had with Bedework (a successful OSS project) could improve ones ability to better support internal projects and work units. Thank you! Ken

18.3 Summary[7]

Leading a University Open Source Project," the fifteenth installment of the Impact of Open Source Software Series, was posted on October 17th, 2007, by Gary Schwartz who currently serves as Director of Communications & Middleware Technologies at Rensselaer Polytechnic Institute and is also serving as project manager and spokesperson for Bedework[8] , the open source, enterprise calendaring system for Higher Education. Thanks David for a great posting!

In his posting Gary starts off by providing some background on the Bedework project highlighting its roots in University of Washington's UWCalendar project. Much of the posting was flowed from the project requirements, which included:

1. Implementation is consonant with our core competencies in Java/J2EE programming, XML, and web interface design and construction.
2. Open source – no license or usage fees
3. The ability to distribute administration and control to the event owners themselves is crucial in a university environment.

[7] This content is available online at <http://cnx.org/content/m19811/1.1/>.
[8] http://www.bedework.org/bedework/

4. The code must provide complete, well-defined APIs which are scrupulously honored, with no local dependencies (authentication, policies, etc.) The packaging must allow competent professionals to easily install the package and to get a demo version running with minimal confusion and frustration.

Gary treats these requirements in terms of how well they were articulated and the challenges they posed the organization. For example, he talks a bit about struggles with IP issues (letting go of concerns around commercial activity), establishing a development community, managing competing demands, and meeting release dates. Gray wraps up the posing by indicating that the Bedework team has benefited from the relationships developed with other institutions.

18.3.1 Comments

Gary's posting is quite well developed and has a lot of content. It served as a great platform to strike at the theme of the Series, which is the impact that OSS and OER has on higher education. The comments centered around the impact of the Bedework project on RPI, as opposed to larger impact on education or the functioning of higher education.

Thanks again to Gary, for his interesting and insightful post and responses, and Pat for making this a great exchange, and other folks who have been reading along. Please join in again on October 31st when Michael Feldstein posts with perspectives. The schedule for the series can be found on WikiEducator[9] .

[9] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 19

Open Source, Economics, and Higher Education (Michael Feldstein)

19.1 Introduction - Michael Feldstein[1]

I want to welcome Michael Feldstein and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on October 31, 2007 (eastern U.S.). Michael will be writing about how open source projects work from an economic perspective. Drawing on the work of Nobel Prize-winning economist Ronald Coase and Harvard economics professor Yochai Benkler, he will provide some perspective on how open source projects manage to defy conventional wisdom about economics and self-interested behavior, and gives some questions that universities can ask when considering whether a particular open source software project is likely to be successful.

Figure 19.1: Michael Feldstein

Michael Feldstein is the author of the e-Literate[2] weblog. He is a lifelong educator who has been involved in online learning for eleven years. Michael has been a member of eLearn Magazine's [3] Editorial Advisory

[1] This content is available online at <http://cnx.org/content/m19870/1.1/>.
[2] http://www.mfeldstein.com/
[3] http://www.elearnmag.org/

Board and is a current participant in the IMS[4] . He is a frequent invited speaker on a range of e-learning-related topics. Most recently, he has been invited to speak on topics including e-learning usability, LMS evaluation methods, ePortfolios, and edupatents for organizations ranging from the eLearning Guild to the Postsecondary Electronic Standards Council, and has been interviewed as an e-learning expert by a variety of media outlets, including The Chronicle of Higher Education, the Associated Press, and U.S. News and World Report.

Michael was a very early participant in Open Source Learning Management Systems projects, having been one of the early participants (and the only non-technologist participant at the time) of the OpenACS community in early 2000—the community that would eventually spawn the GPL-licensed dotLRN Learning Management System.

I am very much looking forward to Michael's posting, which promises to strike at a core theme and build on the great dialog that was generated during the past months on the Series. Please feel free to comment, ask questions, build on the conversation, and enjoy.

19.2 Michael Feldstein - Open Source, Economics, and Higher Education[5]

NOTE: Author - Michael Feldstein. "Open Source, Economics, and Higher Education". Originally submitted October 31st, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

So far this series has included many outstanding contributions that ranged from the deeply philosophical to the deeply pragmatic. My contribution aims to be somewhere between philosophical and pragmatic. (I won't pretend to be deep.) I want to address some practical concerns about open source by drawing on economic theory. In speaking with many friends and colleagues in higher education, I still find that many of them are puzzled and skeptical regarding open source. They just don't trust it. They don't see how it could possibly work.

Now, given that they use open source software every time they open a Firefox browser, connect at home or work over a Linksys router, or start up their Apple computer (or iPhone), and that they likely use open source software almost every time they send an email or view a web page over the servers that keep the internet running, this is a strange concern to have. "Sure, open source works in practice, but does it work in theory?" In some ways, it is a distinctly academic way of viewing the world.

At the same time, there is something counterintuitive about the way open source seems to defy our sense of economics. How could a globally distributed group of volunteers, incited and led by an M.S. student in computer science, possibly develop an operating system that would eventually rival one built by Microsoft, a company with 80,000 employees and tens of billions of dollars in annual revenue at its disposal? And if we don't understand the mechanisms that make this phenomenon possible, how can we trust them? How can we trust our students' education to it?

For an answer, I'm going to look to the work of Harvard Law professor Yochai Benkler, as articulate in his article "Coase's Penguin, or Linux and the Nature of the Firm[6] " and his book The Wealth of Networks: How Social Production Transform Markets and Freedom[7] . Benkler, in turn, draws upon the Nobel Prize-winning work of economist Ronald Coase, whose seminal work explained the economic justification for that fundamental engine of capitalism, the firm. If you believe Benkler (and I do), then the reason that the existence open source (and other products of commons-based peer production such as open educational resources) defies our sense of economics is the same reason that the behavior of a black hole defies our sense of physics: the conditions under which they operate are different than the ones we have seen in our everyday

[4] http://www.imsproject.org/
[5] This content is available online at <http://cnx.org/content/m19875/1.3/>.
[6] http://www.benkler.org/CoasesPenguin.html
[7] http://www.benkler.org/wealth_of_networks/index.php?title=Main_Page

lives. If you can understand these differences, then you see that the laws of physics (or economics) still apply. The world makes sense again.

19.2.1 The Economics of Practical Jokes and Consumer Revolts

But before I get to the academic theory, I'm going to start with a story about an encounter I had with some serial pranksters my freshman year in college. (While I'm not pretending to be deep, this is going somewhere. Please indulge me.) For some reason, these three gentlemen decided that I would be the perfect target for their continued attentions. Without going into the painful details, suffice it to say that at some point I decided that it had to stop. I called up about a dozen friends and gave them the dorm room phone number of the three gentlemen in question. I told them to call the number, pretend that they thought they were calling Pizza World, and try to order a large pie and liter of soda. It struck me at the time as a lame idea for revenge, but it was the best one that I had.

The operation was to commence at 2:00 PM. At 2:15, the first call came in. The next one came in at 2:40. Then 2:55. Then 3:15. By 4 PM, the calls were coming about every 15 minutes. By 6, the next call was coming almost as soon as the previous one ended. My victims' phone continued to ring non-stop until around midnight, at which point the calls began tapering off, finally petering out altogether at around 2 AM. As the calls came in, the details became more imaginative. "I saw a flyer on campus offering a free liter of soda with a large pie." "I clipped a coupon for a free topping from the Daily Targum [the college newspaper]." The targets of my joke soon came to believe that I had blanketed all of the university with their phone number, and that the calls would keep coming until they changed their numbers. I didn't provide any of these details to the callers; they made them up on their own.

The next day, when I called my friends back to thank them for a job well done, several of them begged me to continue the joke for a second night. One of them said that he had random people from his dorm floor standing in a line that stretched halfway down the hall, waiting for their turn to make a call. Many of them would then go to the end of the line and start over, eager for a second shot at the prank. Most of these people didn't know me or their targets. But it turned out that I had hit upon the ideal formula for a practical joke. Given an opportunity to participate with little risk of getting caught, a high percentage of college students who are hanging out on a dorm floor will commit surprising amounts of time and creativity to random acts of mischief. Some of my anonymous allies may have taken satisfaction in believing that they were bringing justice down on some bullies (even if they didn't quite know who the bullies are or why they needed justice to come down on them). Others undoubtedly just wanted to get away with something. The beauty of the setup is that both kinds of motivations could be satisfied at a cost that was low enough for them to act. The key lesson here is that certain kinds of costs constrain behavior more than we realize. Lower the cost, lower the barrier to participation sufficiently, and you cross a kind of event horizon of human participation. Suddenly, the normal rules no longer apply.

Let's look at a slightly less frivolous example. On Sunday, July 30th, 2006, in response to the news that Blackboard had obtained a patent on certain learning technologies, I created a Wikipedia page entitled History of Virtual Learning Environments[8] . One of the primary motivations was to begin gathering prior art that was relevant to the patent. The text of my entry consisted of exactly one sentence:

This page will chronicle the history of virtual learning environment (VLE) development.

One week later, there were more than 160 edits logged for the page. Almost none of them were mine. In fact, the vast majority of them were by people who each contributed one single entry about projects about which they had personal knowledge. Looking at the page today, it is a highly structured scholarly work with 89 external references and a consistent editorial style, despite the fact that literally hundreds of people have contributed to it. As of this writing, the last edit to it was on October 27, 2007. Yesterday. So it is still under active development by somebody, even though the first author (me) hasn't touched it in over a year. None of these people were paid to contribute, and there was no formal editorial process or approval structure. And yet, people do continue to invest their time in the document. Some of them may be doing

[8] http://en.wikipedia.org/wiki/History_of_virtual_learning_environments

so out of concern over the Blackboard patent (either because they have a direct economic stake in seeing it invalidated or because they have a more idealistic commitment to the principles involved); others may simply be interested in documenting the history of an aspect of their profession and in ensuring that their contribution to it gets recognized. Still others may have no specific interest in the subject matter but may be interested in maintaining the overall editorial quality of Wikipedia. The important point is that, when costs of participation are low enough, any of these motivations may be sufficient to lead to a contribution.

It turns out that this is the key to understanding both Coase and Benkler, both capitalist firms and open source communities.

19.2.2 Friction, Intertia, and Economics

Despite a reputation for practicing the "dismal science," Adam Smith and many of his intellectual progeny are fundamentally optimists. You have to be optimistic to believe, as Smith did, that the cumulative effect of individuals pursuing their self-interest in a free market would result in the collective good via the "invisible hand" of the markets. The genius of economist Ronald Coase is that he was able to articulate the force behind this invisible hand—and its limits—in a clear, sensible formula with predictive power. Think of him as the Isaac Newton of economics.

Coase claimed that, in a perfect world, the invisible hand would always prevail. For example, given a farmer and a cattle rancher who both need the same land, the two will always work out a mutually advantageous agreement. One will always offer to compensate the other in return for giving up access to the land such that they both benefit. Importantly, Coase argued that this would be true regardless of who owned the land. In that perfect world, property rights—which many of us have come to understand as a cornerstone of capitalism—are completely superfluous to a properly functioning market. People would trade to mutual benefit without the need for property or companies. Think of this as the economic equivalent of Newton's First Law of Motion: economic transactions in motion tend to stay in motion.

The trouble, of course, is that friction exists. Friction (and gravity) are why baseballs don't fly forever when you throw them on Planet Earth. The economic equivalent of friction, according to Coase, is something called transaction cost. Transaction costs are anything that contribute to the cost of something being purchased other than the cost of the production. If you pay your broker a commission on a stock, that's a transaction cost. If you invest time researching and bargaining for your new car before you buy it, that investment is a transaction cost. If you have to pay a lawyer to write up a legally binding contract so that you have clear title to the house you are buying, that's a transaction cost. When transaction costs are high enough, they make some economic deals too costly. In response to this problem, humans created property and companies. For example, nobody would start a car company by going out and buying all the car components on the open market and then going to yet somebody else (again, on the open market) to have them assemble the cars. The costs would be prohibitive. Instead, somebody hires workers to make the parts and assemble the cars. The automobile workers don't have the transaction cost of constantly looking for somebody to buy the parts that they are making while the factory owner doesn't have the transaction costs of searching to find every single part and negotiate for it separately on the open market. In return for providing a steady income to all the producers, the factory owner gets to own their work product.

Of course, there are costs to running a company too. Anyone who has ever worked in a large organization (or even a small one) knows that they are not exactly frictionless either. There is a cost to centralization. Managers don't always know everything they need to know in order to make optimal decisions. According to Coase, this is the limiting factor on the size of companies. As long as the costs of a centralized organization are lower than the transaction costs on the open market, firms will grow. But as they grow, their internal inefficiencies grow with them. When the internal costs equal the market costs, the firms will reach their growth limits.

In the world that Coase imagined, the choice is binary. There are firms and there are markets. These are the only two means by which economies get things done. And that all makes sense on Planet Earth, where there are gravity and friction to counterbalance the force of inertia. But what about in space? What happens when we radically reduce the amount of friction in the system? According to Benkler, this is exactly the puzzle that the Twenty-first Century information economy poses. Today, an increasingly large percentage of

our economy is dedicated to creating goods that are not automobiles and other industrial goods but ideas. They are software code and gene sequences and art. They are goods that have near-zero cost to reproduce and distribute (a characteristic that economists call non-rival). And they don't require expensive machines and real estate to produce. I help design software for a living, but I work out of my home on a relatively cheap computer. Everything I produce can be reproduced as simply as selecting *"Save As..."* from a pull-down menu.

In this world, Benkler argues, dramatically reduced friction makes practical certain organizational structures that we simply wouldn't see in an industrial economy. The less resistance there is to overcome in a system, the less formal structure is required for transactions to happen. I didn't have to lead an organized movement for my practical joke or the Wikipedia page to succeed. If I did, then neither would ever have happened. But because the costs of participation and coordination were so low, a wide range of people were able to find a wide range of reasons that were sufficient to motivate their useful participation.

And we don't have to assume only non-financial motives such as the ones in my first two examples. To the contrary, the low transaction costs make a wide range of new business models feasible. For example, we know that that upwards of 50% of the total cost of big enterprise software systems are support and maintenance costs. If a company can invest a small fraction of the total resources required to develop a content management system by contributing to an open source project but sell support and maintenance to their customers, then they may be able to beat their proprietary competition on costs while still making a good profit. This economic model has been particularly successful for a little company called IBM. When business analysts say that IBM has transformed itself into a services company, part of what they mean is that it now makes less of its income selling licenses for its proprietary software and more of its income selling support for open source software such as linux and apache.

19.2.3 Professors In Space

This is an oversimplification, of course. Despite the fact that this post is long-winded, I have barely scratched the surface here. The truth is that there are many subtle factors that affect the total friction in any particular open source ecosystem independent of those that are radically reduced in an information economy, and that any of these factors may mean the difference between success and failure. My point (or Benkler's point, really) is that the success of open source in general seems counter-intuitive only when we fail to examine all of the forces at play. Further—and equally importantly for the audience that is most likely to be reading this post—once you lower transaction costs through the mechanisms of a network-based information economy, it turns out that you have a world in which academics can function rather well. After all, academics are the folks who willingly publish articles for free in journals that turn around and charge the universities for access to those same articles. The academe is built on the economics of prestige. It rewards through recognition, which is often the coin that drives open source projects—particularly open source projects that benefit relatively unprofitable markets such as higher education. It also allows individual programmers—the sort of Lone Rangers who tend to gravitate toward academia—to make part-time or full-time incomes by supporting open source for universities and other schools, either directly by contract or indirectly through the small support firms that the universities often hire. It thrives on the contribution of fractional resources (especially when time and creativity are the primary resources being contributed) by highly skilled knowledge workers.

We typically reduce all of economics to supply and demand, but it could be equally well formulated in terms of cost and benefit. Every system of production, whether it is a company, a market, or an open source community, has its costs. On one end of this spectrum, firms work because they can balance relatively lower costs of command-and-control structures relative to a higher cost market. On the other end, commons-based peer production such as open source projects can have lower costs than either firms or markets in a networked environment, where communication of participants and distribution of goods are far lower than we experienced in the industrial economy that those of us who are voting age and older experienced for most of our lives. It isn't intuitive to us because we're not used to having to live and work in space, having spent most of our lives on the ground. I'm here to tell you that the laws of physics still apply. It's just our intuitions about them that need to be adjusted.

19.2.4 Comments

19.2.4.1 1. Gavin Baker - October 31st, 2007 at 12:30 pm

This is my favorite post of the series. Thanks, Michael, for an accessible introduction that makes me want to dig even deeper into Coase and Benkler.

I'm a bit disappointed in the conclusion, though. I had my hopes up for a smoking-gun ending: a prescription for higher ed on the basis of what we know about commons-based peer production.

I've read plenty of such prescriptions (and dashed off "Rx" a few times myself), but they inevitably seem to fail to connect the dots. I was struck by the question "Open source works in practice, but does it work in theory?" It may sound academic, but it's actually quite practical. To fully leverage these forces, we need a complete cycle from practice to theory to practice. There are plenty of practitioners, and there's good theory (albeit not widely-enough understood), but the chain frequently fails when attempting to extract practical knowledge — well-formed prescriptions — from the theory.

Most of the attempts to do so boil down to something like "universities should support FOSS because it's the right thing to do". Perhaps ironically, it seems that many of academia's FOSS practitioners purposefully ignore theory, reducing the motivation to use or produce FOSS to "it seemed like a good idea (it might save money, etc." or some sort of imitation. As Gary Schwartz wrote in his post for the series: "Whereas many university people enjoy a spiritual affinity for open source software, our interest is more pragmatic." To stereotype, one group's motivation is religious, with no concern for practicality; another group's motivation is just to get through the fiscal year without going over budget, with no concern for bleeding-heart causes. We've got theory that explains and reconciles the forces — but nobody's applying it.

To stick with the space metaphor: If someone was designing a rocket, no engineer would mimic previous designs "because it's the right thing to do". Similarly, no engineer would mimic previous designs "because it seems to work". We would expect the practitioners to apply a theoretical foundation. If the president walked in to NASA and demanded, "Explain why this will work," there'd better be a solid explanation — and I'd expect the aerospace engineers to be able to deliver it. But if the president went to NASA's software engineers and asked the same question about their open source projects, I doubt sincerely they could give a complete, succinct, coherent, convincing explanation. (Not to pick on NASA.) It really seems like the practice of FOSS isn't theory, applied — it's *guesswork* or *beliefs*. That's not because the theory isn't there (as this post expertly demonstrates); it's because the theory isn't being applied. How do we change that?

19.2.4.2 2. Michael Feldstein - October 31st, 2007 at 1:02 pm

Thanks for the great comments, Gavin. It had been my original intention to have a couple of sections on the practical implications (or prescriptions, as you put it) for open source in higher education, but I realized that it would have doubled or even tripled the length of this post to do so. Ken is already talking about some kind of follow-up activity that focuses on Benkler's ideas, which I believe can lead to some prescriptions regarding how higher education-focused open source projects could be optimized.

In the meantime, you might want to look at OpenBRR[9] , which is a framework for evaluating open source *products* for implementing institutions. Ken and I did a preliminary analysis of modifying the framework to specifically allow cross-comparison of open source and proprietary LMS platforms by universities. It's available from the Observatory on Borderless Higher Education[10] . (Sadly, it's not free. One of these days, Ken and I need to get around to writing a non-proprietary version of our analysis.)

19.2.4.3 3. Ken Udas - November 2nd, 2007 at 6:29 am

Hello, Great post. I have been very intrigued by the CBPP since Kim Tucker introduced it to the Series in his posting titled FLOSS, OER, Equality and Digital Inclusion (Section 7.2). I think that it is powerful because it is both descriptive and potentially prescriptive. That is, I think that it can help us look beyond the "magic" of OSS, FOSS, and OER in terms of sustainability, growth, etc. One of the problems, I think,

[9] http://www.openbrr.org/wiki/index.php/Home
[10] http://www.obhe.ac.uk/

is that CBPP is an economic model, which is difficult to grasp without some background in theories of the market or firm and without some prior experience with OSS, FOSS, or OER. That is, the model itself has some concept burden and some content burden. It is my feeling that while Benkler's articles are masterful, they are quite challenging for the uninitiated or attention-challenged and honestly, as learning tools, are subject to the natural limitations of being "articles".

What if, a group of people developed a "course" that was designed to break down the underpinning principles of CBPP, and illustrate the model's assumptions, connections, and limitations through the collection of examples of successful and not-so-successful projects predicated on CBPP. The CBPP model could be represented in multiple formats (mathematics, descriptive text, interactive graphs, visuals, etc.), take advantage of reflective practice, and self assessment to help enhance understanding. I believe that this might be one way to connect theory and practice and introduce explicitly the notion that OSS, FOSS, and OER initiatives exist as part of a larger ecosystem, which does not always provide ideal conditions. Just how "ideal" does the experiment have to be before CBPP breaks down?

Any thoughts? Any interest? Ken

19.2.4.4 4. Michael Feldstein - November 2nd, 2007 at 2:47 pm

I think it's a great idea, Ken. We could either use Benkler's wiki[11] or possibly start our own, if the feeling is that we'll be very higher education-focused.

19.2.4.5 5. Ken Udas - November 6th, 2007 at 7:07 am

Michael, I think you did a great job outlining some of the reasons why the success of OSS seems counter intuitive (at least to us who are terrestrial). I have two big questions:

1. Practically, how do you see practitioners using the CBPP model to make decisions?
2. Do you think the distinction that many posters in this series between OSS and FOSS (Open & Free) important to CBPP?

These are open questions. If anybody else has thoughts, please feel free to chime in! After all, the more voices, the sweeter the choir.

Btw: Kim put together a resource titled Say "Libre" for Knowledge and Learning Resources[12] that starts seriously poking around the differences between "Open" and "Free."

Cheers, Ken

19.2.4.6 6. Michael Feldstein - November 11th, 2007 at 12:25 pm

Ken, on the first question, I don't think that Benkler's analysis is detailed enough to provide clear and concrete decision-making guidelines to practitioners; nor do I think that Benkler would claim otherwise. However, it does provide some general direction and guidance for investigation.

Which brings me to your second question. There are two elements to the frame that Benkler provides. The first is measure of "success." Benkler doesn't provide us with an explicit measure, in part because his point is that when transaction costs are low enough people with more diverse motivations will enter the game. But implicitly, the measure here is the same measure that is applied to markets and firms in economic analysis, i.e., how much value in terms of new and better product can be unlocked at the lowest cost for the producers? So if we're thinking about educational software, for example, one important test on this model would be the proliferation of high-quality educational software on the market, regardless of whether it is open or proprietary. Benkler thinks that network-based production will bring along all kinds of other civic values and will ultimately win out over more traditional means in many cases, but I don't think you can dismiss the big economic picture from his framework for the purpose of the question that you asked.

[11] http://www.benkler.org/wealth_of_networks/index.php/Main_Page
[12] http://www.wikieducator.org/Say_Libre

The second element of Benkler's frame is cost. What is the cost of each license style to potential producers of open source code? This turns out to be a very community-specific question. Consider the following examples:

A proprietary vendor wants to contribute code to an open source project. However, in order to do so under a FOSS license, the vendor has to firewall FOSS developers in order to prevent inadvertent contamination of the company's proprietary code with ideas that the developers gained from working with the FOSS code. This is a cost that may prevent the proprietary company from contributing code.

A small development shop (or individual) is contributing for idealistic reasons and as a means of earning a living via consulting. Under an OSS license, a proprietary competitor could take their contributions and resell it, which may be costly both in terms of ideological commitments and real economic benefits to the contributor.

If your goal is to achieve success for a (F)OSS project by lowering transaction costs, you can't do that without answering the question, "Costs for whom?" From this perspective, the right license is the one that, on balance, leads to lowering of the specific transaction costs for the particular participants that have the largest positive impact on the project's progress. It's what the utilitarians would call "felicific calculus".

19.3 Summary[13]

"Coase's University: Open Source, Economics, and Higher Education," the sixteenth installment of the Impact of Open Source Software Series, was posted on October 31st, 2007, by Michael Feldstein who maintains a high profile in the education technology community a member serving on the eLearn Magazine's Editorial Advisory Board and is a current participant in the IMS. Thanks, Michael, for a great posting!

In his posting Michael addresses, or at least pokes at, some of the conceptual challenges that Yochai Benkler's Commons Based Peer Production (CBPP) model creates for us while thinking about the viability of open source software. He sets up the substance of his post by asking, "Sure, open source works in practice, but does it work in theory?"

Michael responds to this question by providing some personal and practical examples of CBPP. He points to the roles of friction and inertia in the economics of producing value in an information-based environment, and by extension the creation of digital assets.

Michael wrap's up his post by suggesting that CBPP is important because it helps explain the success of OSS and OER. He indicates that the model reduces the counter-intuitive nature of OSS and OER because it helps us examine all of the forces at play. Finally, he points out that the academy is a good and potentially fertile environment to support production of information and knowledge assets as described by CBPP.

19.3.1 Comments

Michael's posting generated an interesting conclusion. Basically, it would be great to be able to develop additional resources that help connect CBPP in a practical way with OSS, FOSS, and OER activities in education. That is, resources that help us better understand the forces at play in CBPP and to make decisions about creating an ecosystem that supports OSS, FOSS, and OER. We have developed some momentum and as activity develops, it will be open. Two very broad questions were posed in the last comment. They are:

1. Practically, how do you see practitioners using the CBPP model to make decisions?
2. Do you think the distinction that many posters in this series have made between OSS and FOSS (Open & Free) is important to CBPP?

They remain open for dialog, and you are invited to do so.

Thanks again to Michael, for his interesting and insightful post and responses, and Gavin for making this a great exchange, and other folks who have been reading along. Please join in again on November 14th

[13] This content is available online at <http://cnx.org/content/m19883/1.1/>.

when Steve Foerster posts on the topic of Fair Use as an alternative and complement to open licensing. The schedule for the series can be found on WikiEducator.[14]

[14] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 20

Fair Use as a Complement to Open Licensing (Steve Foerster)

20.1 Introduction - Steve Foerster[1]

I want to welcome Steve Foerster and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on November 14, 2007 (eastern U.S.). Steve will be writing about American legal system's concept of fair use of copyrighted materials as it relates to education.

Figure 20.1: Steve Foerster

Steve currently serves as the Director of E-Learning at Marymount University[2] in Arlington, Virginia, where he oversees distance learning, instructional technology, and technical training. He is also on the Advisory Board of WikiEducator[3] , a Commonwealth of Learning funded project to develop a complete set of open educational resources for all disciplines at the primary, secondary, and tertiary level by 2015. He migrated to the open education movement from having been an open source software enthusiast, and prefers dedicating content to the public domain rather than licensing it.

[1] This content is available online at <http://cnx.org/content/m19871/1.1/>.
[2] http://www.marymount.edu/its/els
[3] http://wikieducator.org/

I am very much looking forward to Steve's posting, which promises to widen our thinking about Open Educational Resources by introducing Fair Use into our discussion into this Series. Please feel free to comment, ask questions, build on the conversation, and enjoy.

20.2 Fair Use as a Complement to Open Licensing [4]

20.2.1

NOTE: Author - Steve Foerster, "Fair Use as a Complement to Open Licensing". Originally submitted November 14th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

The open educational resources movement has long concentrated on the use of licenses to turn material that is copyrighted and permanently transform it into material that is free for anyone to use, copy, and modify. These licenses depend on copyright to work, in that the work has all of the normal entitlements of copyright attached, only some of which the author reserves.

Advantages of licenses include that they are easy to understand; that it's clear what they forbid, permit, and require; and that they have at least some legal standing no matter where in the world one wishes to use the material they cover. A different concept that also relies on copyright is the American legal doctrine of fair use of copyrighted materials. This doctrine states that there are certain circumstances in which it is legal to use copyrighted materials without the permission of the copyright holder.

Fair use came about from federal court decisions in the nineteenth century that sought to balance the entitlements provided by copyright legislation with the interest of free speech specified by the first amendment to the U.S. Constitution.

20.2.2 Four Considerations for Fair Use

While the origin of fair use lies with federal court decisions, it was also entered into legislation, specifically the Copyright Act of 1976. This legislation stated:

> *Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—*
>
> *1. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;*
>
> *2. the nature of the copyrighted work;*
>
> *3. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and*
>
> *4. the effect of the use upon the potential market for or value of the copyrighted work.*

[4] This content is available online at <http://cnx.org/content/m19878/1.2/>.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

The first consideration is the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes. When it comes to purpose and character, courts have ruled that whether the use of the work is fair use requires that the new work be not merely derivative of the original, but transformative of it. It's important to note that while court decisions have said that a stronger case can be made for fair use that is in an educational setting, particularly a non-profit one, even that class of use does not make it a given that use of material is fair use – the other considerations are still in effect.

The second consideration is the nature of the copyrighted work. This includes whether the work is fiction or non-fiction, and takes into account the concept of "idea-expression dichotomy," which holds that facts may not be copyrighted, only expressions of them can be. This consideration also allows for fair use of non-published material.

The third consideration is the amount and substantiality of the work copied. This consideration explains why a single textbook cannot simply be (legally) copied in its entirety for each student to use even though "teaching (including multiple copies for classroom use), scholarship, or research" is specifically listed as part of the rationale for this section of legislation. There is no simple percentage, however, that can be used to determine whether this consideration has been met. Even copying a small portion of a work may not be fair use if it is considered to be the core of the larger work. Recent court decisions have strengthened this consideration, particularly for music sampling, for which fair use essentially no longer applies.

The fourth consideration is the effect of the copy's monetary value on the original work. The more the copying might negatively affect the monetary value of the original, the weaker the claim to fair use becomes. Whether fair use may actually increase the value of the original work through popularizing it is not often discussed.

20.2.3 The Trouble with Fair Use

Fair use would seem to be a great option for American educators. The ability to choose between free use of an ever increasing set of open materials and limited use of the vast sea of closed materials might seem enviable. But there are pitfalls involved with fair use that dramatically limit its utility.

Most importantly, even though education is specifically listed as a core reason for why there is a fair use doctrine at all, and thus the first consideration is strongly on the side of educators, the other considerations are also weighed in making the determination. This leads to a situation in which four considerations, some of which are more ambiguous than others, are all weighed on a case by case basis, making it nearly impossible to say with certainty whether or not any given use of copyrighted material is fair use. (In fairness, open licensing also has its share of ambiguity, such as the precise delineation of when use of licensed work is non-commercial and when it is not.)

This uncertainty dovetails what is perhaps the most compelling reason that educators are wary of fair use - that fair use is not a protection from copyright violation lawsuits, but merely an affirmative defense for those who have been subjected to them. Litigation has long since supplanted baseball as America's national pastime, and there is little to prevent large corporate copyright holders from filing suit against those making fair use of their materials in the hope that an unmeritorious lawsuit is sufficient to dissuade the fair user's activities.

The result of this situation is that educators often don't make fair use of copyrighted materials, choosing instead the easier, safer route of rights clearance when wishing to use such works. Not only is this a waste of educators' time and money, however, but what is considered fair use by courts is determined in part by community standards, and as the community continues to select rights clearance whenever there's a gray area, those gray areas become territory that is harder and harder for fair use to recover.

20.2.4 A Possible Solution

Educators might do well to consider the example of documentary filmmakers. These filmmakers were finding themselves unable to get the insurance companies that cover their industry to agree to cover any film if it made any fair use of copyrighted materials whatsoever. They were increasingly subjected to rights clearance requirements even for trivial use of ostensibly copyrighted material, and it was interfering with their ability to use film as a medium for speaking out.

Ultimately, a group of five documentary film organizations came together to draft a Statement of Best Practices in Fair Use for their industry. This Statement was then endorsed by fifteen organizations, giving it a compelling claim to representing the standards of that community. This proved crucial, since community standards are given significant weight when determining whether use is fair use. This Statement became the definitive one by which courts would make this determination, leading to greatly increased confidence on the part of documentary filmmakers and the companies that insure them. In fact, several insurance companies have since switched from rejecting all fair use to covering it, provided that it falls within the parameters outlined by the Statement.

American educators should look at this example and work together to put together a similar statement that can help reclaim fair use as a clear-cut option for teachers and professors who wish to make use of the vast culture that surrounds us when engaging in our professions. Fair use is ultimately based on our right to free speech. Let's speak out while we still can!

20.2.5 Notes

There are a number of resources I found particularly helpful and interesting when writing this article:

- "The Cost of Copyright Confusion for Media Literacy" by Renee Hobbs, Peter Jaszi, and Pat Aufderheide; published by the Center for Social Media[5] at American University.
- Wikipedia's article on Fair Use[6] , which is pretty approachable for an article about a legal doctrine.
- A video called A Fair(y) Use Tale[7] which explains fair use and is comprised entirely of short clips from Disney movies. (For those who don't get the joke, Disney has been one of the most vicious lobbyists for copyright extension, despite its longstanding use of material in the public domain.)

This article is dedicated to the public domain, with no entitlements reserved.

20.2.5.1 1. Ken Udas - November 16th, 2007 at 6:09 am

Steve, I think this is a very interesting posting and points to a doctrine that has not been discussed in this Series to this point. I have a bunch of questions, but will refrain from posing them all at once. It seems to me that the thrust of your post is that:

> *The challenge with Fair Use is that it is ambiguous. It is a defense whose application is subject to significant interpretation in the court.*
>
> *We can potentially reduce the ambiguity and risk of using if we act as the documentary film professionals and draft a Statement of Best Practices in Fair Use, but apply it to education.*

Is that right?

Now, we recognize that all sorts of "Fair Use" is applied in traditional residential settings where materials are distributed to a small group of learners, frequently in non-digital formats. It seems that the stakes were raised when content started being published in digital formats in learning management systems and on other systems used for education. Within the context of much of the discussion on this blog, do you see

[5] http://www.centerforsocialmedia.org/
[6] http://en.wikipedia.org/wiki/Fair_use
[7] http://www.youtube.com/watch?v=CJn_jC4FNDo

the possibility of framing Fair Use to allow "reuse" for educational purposes, or do you think that reuse is antithetical to the Fair Use doctrine as it is currently understood/interpreted?

Pushing the question a little further, what is the role that you see of Fair Use in "Open Education" and what are some of its principal limitations/challenges as it is currently understood/interpreted?

Cheers, Ken

20.2.5.2 2. Wayne Mackintosh - November 17th, 2007 at 2:06 am

Hi Steve, Great post! Within the US legal system - fair use is a powerful doctrine. Sadly - this is not the case in other national jurisdictions. That said - I appreciate that your reflection is intended for an American audience.

Writing from outside the US - for me the important lesson for us should be the connection between free use and the first amendment to the use constitution. The free knowledge movement derives its meaning and purpose from "freedom of speech". That's an important link.

If ideas could speak - I'm sure they'd say that they want to be free! Its in the interests of the progression of knowledge for knowledge to be free. But hey - I'm talking to the converted!

I'd also interested in Ken's question re how fair use is or can be applied in the digital domain. Its one thing to use a digital copy (photograph) of an artwork. What is the position on digitising a copyrighted work under the fair usage doctrine?

Looking forward to the discussions. Cheers Wayne

20.2.5.3 3. Steve Foerster - November 17th, 2007 at 2:11 pm

Ken, you've captured the point of my post very well. The ambiguity is an issue, in that the more educators engage in unnecessary copyright clearance, the more that copyright holders can argue that such compliance is a de facto community standard.

I'm not sure how useful the doctrine can be for reuse, since it's meant as an affirmative defense for use of copyrighted materials on a case by case basis. However, I could see educators sharing examples of resources they've been able to use in classrooms because of clarified standards of fair use, which would be pretty close. Perhaps such an exchange of suggestions would be a way of bringing in educators to then consider open resources as well?

Wayne, it's true that fair use is an American concept, but in the Commonwealth there's a related concept called fair dealing: http://en.wikipedia.org/wiki/Fair_dealing[8]

I'd be interested to know whether similar issues with community standards apply in Commonwealth jurisdictions, and whether a statement of best practices might therefore be useful in those countries as well.

-=Steve=-

20.2.5.4 4. Ken Udas - November 20th, 2007 at 6:09 am

Hello, I am wondering if there are some good resources that already frame the issue a bit here in the States and could be expanded. I would guess, that in many countries, even without a formal "Fair Use" or "Fair Dealing" doctrine, published content is used in the class as a norm, perhaps with national governments being silent on the issue. I just came across a resource titled The Teach act Finally Becomes Law[9] , which outlines the Teach Act and points to some of the differences between how traditional classroom based education and distance learning is treated relative to Fair Use & the Teach Act

The TEACH Act expands the scope of educators' rights to perform and display works and to make the copies integral to such performances and displays for digital distance education, making the rights closer to those we have in face-to-face teaching. But there is still a considerable gap between what the statute authorizes for face-to-face teaching and for distance education. For example, as indicated above,

[8] http://en.wikipedia.org/wiki/Fair_dealing

[9] http://www.utsystem.edu/OGC/intellectualProperty/teachact.htm

an educator may show or perform any work related to the curriculum, regardless of the medium, face-to-face in the classroom - still images, music of every kind, even movies. There are no limits and no permission required. Under 110(2), however, even as revised and expanded, the same educator would have to pare down some of those materials to show them to distant students. The audiovisual works and dramatic musical works may only be shown as clips — "reasonable and limited portions," the Act says. (http://www.utsystem.edu/OGC/intellectualProperty/teachact.htm[10])

The resource ends with a short checklist that helps an individual or institution understand if they are already using the Teach Act. I am wondering if this type of approach, reformatted as a questionnaire, could be used to get a sense of how "Fair Use/Fair Dealing/etc." is being practiced in the US and outside. If so, how might that contribute to a process resulting a "Community Standards" document/resource?

Cheers, Ken

20.2.5.5 5. Steve Foerster -November 24th, 2007 at 10:23 am

Ken, I expect you're right that educators everywhere usually do what's right for their students regardless of whether the what the local legal climate may be, and rightly so.

The TEACH Act is useful in certain situations, but it has some limitations. One is that it only applies to government run schools or accredited non-profit schools. Say what you want about commercial schools, but this means that their students don't have the same access to knowledge that their peers in government and non-profit schools do. It also forces schools that take advantage of it to distribute materials that "accurately describe, and promote compliance with, the laws of United States relating to copyright." Not sure how I feel about that, especially "promoting compliance — what if there's a group on campus that distributes materials that promote not complying with copyright?

The advantage of the TEACH Act is that it's a lot more clearcut than fair use. The problem with fair use is that there are enough overlapping gray areas that no checklist could provide a definitive answer. Even when people try to put together guidelines they're oversimplifications that might get those who follow them into trouble, e.g. http://kathyschrock.net/pdf/copyright_schrock.pdf[11]

A statement of best practices would be better. I understand that media literacy educators are starting to work on this for themselves, I'm corresponding with them now about whether there's room in their initiative for all educators.

20.2.5.6 6. Ken Udas - November 25th, 2007 at 8:35 am

Great points. I really had not dug into the restrictions associated with the Teach Act. I was thinking less of using the "Check List" a tool for compliance and more as one way of collecting information about current application (practice). I was thinking that it might be a low-barrier means of getting base-line information about how teachers think about Fair Use without asking them to write full descriptions of best practice. This would simply describe some facets of current practice, which might help inform an effort leading to something more fully formed – perhaps a statement supported by illustrative examples. Is this coherent with what you see as useful?

20.2.5.7 7. Ken Udas - November 25th, 2007 at 8:38 am

Now, for the last really broad question that I want to ask. In your opinion, what do you think the relationship might be between Fair Use and OER (if any)?

20.2.5.8 8. Steve Foerster - November 25th, 2007 at 12:37 pm

I'm not sure the idea is necessarily to get teachers up to speed on fair use before putting together a statement of best practices. I think it's more to have those educators who already have expertise and understand the

[10] http://www.utsystem.edu/OGC/intellectualProperty/teachact.htm
[11] http://kathyschrock.net/pdf/copyright_schrock.pdf

issue to draft it and have it be recognized by a variety of educator advocacy groups. Once that's done it should be a much more manageable task for teachers and lecturers to get a clear understanding of what's acceptable and what isn't.

As for the relationship between fair use and OERs, I don't think there really is one when it comes to the materials themselves. Fair use is nothing more than a limited set of circumstances when closed content can be used without permission. However, we're all part of the free culture movement. Just as the OER movement has benefited from involvement from the Access to Knowledge crowd, hopefully as the movement to reclaim fair use grows among educators, those people will be interested in getting involved with OERs as well.

20.2.5.9 9. karen - November 30th, 2007 at 8:34 am

Interesting discussion. One other thought on the possible relationship between fair use and OER is that as more educators realize how limited and ambiguous fair use really is (many think it is a blanket exemption to use closed materials) the need and value of OERs becomes more evident.

I have been doing some awareness-building presentations about OER for K-12 educators. I decided to do this in part in response to some appalling experiences hearing educators misinterpreting copyright law and fair use and passing these misunderstandings on to students. The reception to these sessions has been very strong. Most teachers want to do the right thing, I think; they just don't understand what that is and what options, such as OER, exist.

I think that your idea of a drafting a "statement of best practices" in this area is a good one. Are you interested in putting together something like that, perhaps in a wiki where an interested group could collaborate on this?

20.3 Summary[12]

"Fair Use as a Complement to Open Licensing," the seventeenth installment of the Impact of Open Source Software Series, was posted on November 14th, 2007, by Steve Foerster who currently serves as the Director of E-Learning at Marymount University in Arlington, Virginia, where he oversees distance learning, instructional technology, and technical training. He is also on the Advisory Board of WikiEducator, a Commonwealth of Learning funded project to develop a complete set of open educational resources for all disciplines at the primary, secondary, and tertiary level by 2015. Thanks Steve for a great posting!

In his posting Steve provides an overview description of the US doctrine of Fair Use, which points to the issue of appropriate use of copyrighted materials for educational purposes. In his post Steve:

- Provides some background,
- Identifies the factors that the court will use when considering the application of Fair Use,
- Identifies some of the challenges and limitations of Fair Use, and
- Points to a method to help reduce the ambiguity associated with using Fair Use as a defense against copyright infringement.

The thrust of Steve's post is that Fair Use, by its nature, carries significant ambiguity causing some confusion and anxiety for actors who would like to rely on it as a means to enhance education through the use of copyrighted materials. He then points to a potential solution that reduced ambiguity around Fair Use, which was used by several documentary film organizations. The documentary filmmakers drafted a Statement of Best Practices in Fair Use for their industry, which provided context for others interested in applying Fair Use and to serve as guidance for court interpretations. Steve suggested that we might consider the same approach for teachers and professors.

[12] This content is available online at <http://cnx.org/content/m19879/1.1/>.

20.3.1 Comments

Steve engaged in some dialog about the use and limitations of Fair Use. It was pointed out the Fair Use is a US doctrine, but although this is true, there is a related doctrine in the Commonwealth referred to as Fair Dealing[13] , which might also be a good starting point. The Teach Act was also raised and clarification was provided about its strengths and limitations. In the end, the idea of creating some documentation about best practice was raised as a sound method to develop clarity on the use of Fair Use, Guidance for the Courts, and preservation of the doctrine itself.

I think that it is worth pointing out that the last posts, Fair Use as a Complement to Open Licensing and Coase's University: Open Source, Economics, and Higher Education, have resulted in recommendations for projects designed to provide clarity of practitioners. I believe that Fair Use, in the case of Steve Foerster's posting, and Commons Based Peer Production (CBPP), in the case of Michael Feldstein's posting are both potentially important enablers for teachers and more generally for education organizations. It is my hope that projects are pursued.

Thanks again to Steve for his interesting and insightful post and responses, and Wayne for making this a great exchange, and other folks who have been reading along. Please join in again on November 28th when Leigh Blackall outlines the steps that Otago Polytechnic has taken in developing new capacity with Open Educational Resources, as well as some of the challenges being faced, and the vision for their future. The schedule for the series can be found on WikiEducator[14] .

[13] http://en.wikipedia.org/wiki/Fair_dealing
[14] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 21

Educational Development at Otago Polytechnic (Leigh Blackall)

21.1 Introduction - Leigh Blackall[1]

I want to welcome Leigh Blackall and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. His post is scheduled to appear on November 28th, 2007 (eastern U.S.). Leigh will be writing about Otago Polytechnic's adoption of a Creative Commons Attribution copyright license and its use the Wikieducator platform - along with many of the popular media sharing services, to develop and publish Open Educational Resources. In this post Leigh will outline the steps that the Polytechnic has taken in developing this new capacity, as well as some of the challenges being faced, and the vision for their future.

Figure 21.1: Leigh Blackall

Leigh Blackall specializes in networked learning and socially networked media and communications. He is employed as an Educational Developer at the Otago Polytechnic[2] in Dunedin, New Zealand, and blogs his work to Learn Online[3] .

I am very much looking forward to Leigh's posting, which will serve as a practical case for teachers,

[1] This content is available online at <http://cnx.org/content/m19869/1.1/>.
[2] http://www.otagopolytechnic.ac.nz/
[3] http://learnonline.wordpress.com/

managers, and other organizational leaders who are considering institutional initiatives in support of OER. Please feel free to comment, ask questions, build on the conversation, and enjoy.

21.2 Educational Development at Otago Polytechnic [4]

NOTE: Author - Leigh Blackall, "Educational Development at Otago Polytechnic". Originally submitted November 29th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

Otago Polytechnic has adopted a Creative Commons Attribution[5] copyright license and has been using the Wikieducator platform[6] with other popular media sharing services to develop and publish Open Educational Resources and Practices[7] . This article outlines some of the steps that the Polytechnic has taken, as well as some of the challenges being faced, and a vision for the future. It should be noted that this article has been written from the perspective of the author, and not necessarily from Otago Polytechnic as a whole.

This article has been written on the request of Ken Udas, editor of Terra Incognita a web journal by Penn State University[8] .

A wiki version of this article is available here.[9]

21.2.1 Contents

1. About Otago Polytechnic
2. The Educational Development Centre
3. Staff development, weblogging, digital literacy
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6. Working with Wikieducator
7. A Wikieducator development structure, page templates and staff development
8. Vision for content developed on Wikieducator
9. Risks and foreseeable issues
10. Conclusion

21.2.2 About Otago Polytechnic

The Otago Polytechnic is a public New Zealand tertiary education institute that graduates around 4500 students per year. It is centred in the city of Dunedin with campuses throughout the Southern (mostly rural) region of Otago including Cromwell, Wanaka and Queenstown, and supports a small number of Community Learning Centres in various regional towns.

Otago Polytechnic focuses on skills based, technical education and occupational training, offering a range of New Zealand accredited degrees, diplomas and certificates. (Wikipedia 24 Nov 2007[10])

21.2.3 The Educational Development Centre

In 2006 Otago Polytechnic established an Educational Development Centre for staff development, online and flexible learning development, and research into educational development.

[4] This content is available online at <http://cnx.org/content/m19874/1.3/>.
[5] http://creativecommons.org/licenses/by/3.0/nz/
[6] http://wikieducator.org/
[7] http://wikieducator.org/User:Leighblackall/Open_educational_resources_and_practices
[8] http://blog.worldcampus.psu.edu/
[9] http://wikieducator.org/User:Leighblackall/Educational_Development_at_Otago_Polytechnic
[10] http://en.wikipedia.org/w/index.php?title=Otago_Polytechnic&oldid=173390041

By mid 2006 the Polytechnic established a contestable fund for Departments and staff to apply for assistance in developing flexible learning opportunities in their courses, including skills and knowledge in teaching and/or facilitating flexible opportunities for learning and formal recognition. This fund is called the Flexible Learning Development Fund and is mediated by the Educational Development Centre (EDC).

By the end of 2006, 3 EDC Programme Developers were helping to manage around 20 course and programme development projects initiated by staff through the fund, as well as through research grants. The following article is an individual account of progress in this effort by one of the Programme Developers.

21.2.4 Staff development, weblogging, digital literacy

Through 2006 and 2007 the EDC ran a range of professional development activities[11] for staff, including 2 instances of the teacher training course Designing for Flexible Learning Practice[12] (which is part of a larger teaching qualification now required by teaching staff at the Polytechnic) and 1 instance of Facilitating Online Learning Communities[13] . These courses, along with numerous informal workshops and professional networks[14] , have helped to develop critical digital and network literacy's[15] as well as general awareness of the popular Internet amongst staff - particularly blogs, wikis, social bookmarking and RSS.

Currently there are a number of Polytechnic staff actively documenting their work and progress on individual weblogs. By subscribing to the RSS feeds from these blogs, it is easy for colleagues and EDC to assess and keep up to date with experiments, new ideas and methods, issues and concerns, and, of course, the development of digital literacy and networked communication skills. We can also observe the progress of specific projects, and in some instances, educational courses being run through a weblog. With this level of access we can enter into discussions, offer timely advice as well as point to best practices when needed. By comparison, obtaining this level of access and overview through traditional communication channels (such as face-to-face meetings, email or formal reporting) is not only inefficient but typically lacks accurate and authentic insight or opportunities for wider consultation.

As an example of the level of access and insight that can be obtained through staff blogging, and the extent to which some project documentation is being done, the following list points to some of the more active bloggers in the Polytechnic. These blogs should be considered as personal documentations beyond the formal job descriptions of the authors and so, authentic accounts of their work so far.

1. Bronwyn Hegarty[16] – Education
2. Kim Thomas[17] – Horticulture
3. Hillary Jenkins[18] – Tourism
4. Leigh Blackall[19] – Education
5. Helen Lindsay[20] - Learning support
6. Sam Mann[21] - Software Engineering
7. David McQuillin[22] - Massage Therapy
8. Rachel Gillies [23] - Visual Arts Photography
9. Carolyn Mcintosh[24] – Midwifery
10. Sarah Stewart[25] – Midwifery

[11] http://www.otagopolytechnic.ac.nz/schools-departments/educational-development.html
[12] http://flexiblelearningpractice.blogspot.com/
[13] http://online-learning-communities.blogspot.com/
[14] http://wikieducator.org/Networked_learning
[15] http://networkedlearning.wikispaces.com/digital+literacy+and+how+it+affects+teaching+and+learning+practices
[16] http://bahtings.blogspot.com/
[17] http://hortykim.wordpress.com/
[18] http://appliedtravelandtourismprogramme.blogspot.com/
[19] http://learnonline.wordpress.com/
[20] http://helenlindsay.wordpress.com/
[21] http://computingforsustainability.wordpress.com/
[22] http://massageonline.wordpress.com/
[23] http://flexiblelearningrach.wordpress.com/
[24] http://mymidiblog.blogspot.com/
[25] http://sarah-stewart.blogspot.com/

11. Merrolee Penman[26] - Occupational Therapy
12. Graeme Dixon[27] - Occupational Therapy
13. William Lucas[28] - Languages and learning support
14. Matt Thompson[29] – Building
15. Jacquie Hayes[30] - Community Learning Centre
16. Wendy Ritson Jones[31] - Librarian (on leave)
17. Pam McKinlay[32] - Visual Arts Historian

And there are a few who are using blogs to channel communication and information relating to courses.

1. Tour Guiding[33] - Soon to migrate to http://tourguiding.edublogs.org[34] along with several other course blogs for the Applied Travel and Tourism Programme.
2. Cookery[35] - a video blog presenting videos recorded in class.
3. Learning English[36] - with reguler posting of what is to be done in class.
4. Participation in Occupation[37] - Access to lecture slides, notes and supporting material.
5. Peer Tutoring[38] - Short course for people interested in becoming tutors.
6. Designing for Flexible Learning Practice[39] - announcements, updates and related links for a teacher training course.
7. Facilitating Online Learning Communities[40] - cross institutional course blog with announcements, updates and related links for a online facilitator training course.

Some staff see little value in documenting their work with weblogs, but are non-the-less interested in activities and initiatives to do with flexible and online learning, open education, and socially networked media. The Networked Learning email forum [41] was set up in mid 2006 as a channel for informal learning and to support staff development through more widely used email communication. Formal learning opportunities are also provided through courses like Designing for Flexible Learning Practice[42] and Facilitating Online Learning Communities[43] already mentioned.

21.2.5 Vision for staff blogging

Primarily weblogs are being used as a simple device for developing digital literacy and critical awareness of online networking and communications. EDC encourage as many staff as possible to use a blog to document projects and professional development, with a view that the regularity of writing online inevitably leads people to use hyperlink referencing, optimise and embed images and media, change blog style sheets, and add or create their own media. All this helps a person to develop digital literacy and improve communication skills, as well as critical awareness of what it means to have a professional presence within a network on the Internet.

[26] http://oteducation.wordpress.com/
[27] http://graeme-aworldaway.blogspot.com/
[28] http://www.blogger.com/profile/07975162124081525241
[29] http://matt07.wordpress.com/
[30] http://jacquiehayes.wordpress.com/
[31] http://wotsitabout.blogspot.com/
[32] http://pammckinlay.blogspot.com/
[33] http://tourism1.wordpress.com/
[34] http://tourguiding.edublogs.org/
[35] http://otagocookery14.blogspot.com/
[36] http://williamclassblog2006.blogspot.com/
[37] http://participationinoccupation1.blogspot.com/
[38] http://studentstutoringstudents.wordpress.com/
[39] http://flexiblelearningpractice.blogspot.com/
[40] http://online-learning-communities.blogspot.com/
[41] http://groups.google.com/group/Networked-Learning
[42] http://flexiblelearningpractice.blogspot.com/
[43] http://online-learning-communities.blogspot.com/

In terms of networking through blogs, on a local scale it is observable in those who are blogging and using an RSS reader to track other blogs, that there is a gradual increase in awareness of what their colleagues are doing, what advances they are making, and what issues they are facing. Through this local networking, bonds are developing online that are helping to support informal learning and development. Over time it is hoped that this local awareness and communication will strengthen and develop into a more national and international network for each of the staff members. It is envisioned that some will come to see the value this approach has to maintaining a professional profile online, and encourage their colleagues to do the same.

While all this is helping to improve digital literacy and critical awareness, ultimately it is hoped that these skills will transfer into better services to potential and existing students. Extended thinking around this vision is expressed further in the following posts:

1. Out From Under the Umbrellas[44]
2. What Would it be like to be the Rain[45]

21.2.6 A change in the Organisation's Intellectual Property Policy and Practices

Toward the end of 2006 Flexible Learning Developments started to engage in content creation. Many staff did not have the Internet research skills to first search for existing content with copyrights that could enable reuse. Nor did many have experience in producing media other than text documents and slide presentations. EDC started building awareness on how to search for Creative Commons licensed content and other free content, as well as techniques for searching popular media sharing sites for reusable content. As awareness grew of the quantity and quality of existing and developing free content, so did staff willingness to consider reusing existing content before developing entirely new content. It became apparent that the organisation's Intellectual Property Policy needed to be written in such a way as to enable the legitimate reuse of such open educational resources, as well as to encourage staff to participate and contribute to the pool of resources and help establish a stronger online presence for the Polytechnic.

By mid 2007 a new IP policy[46] was agreed on that acknowledges staff and student's individual ownership over their IP, but encourages the use of a Creative Commons Attribution (CC BY) license as the preferred copyright statement on works published with the Polytechnic's name. Individual owners of IP who wish to publish with restrictions beyond attribution are required to notify the Polytechnic so that an appropriate restrictive statement can be added. In short, the All Rights Reserved default over content from the Polytechnic has been replaced by a Some Rights Reserved - Attribution default with an option for individuals to restrict. This is a simple inversion to what is common in most other educational institutions.

The new IP Policy is a strong mechanism for dispelling staff uncertainties about engaging with the Internet, and sends a clear message that it is appropriate to use publishing services like blogs, media sharing services, and to contribute to international wiki projects individually and/or in the name of the Polytechnic. Such activity is beneficial to the Polytechnic as it more widely distributes the name and the courses and services it offers, not to mention the expertise of its employees. EDC plays a role in helping to maintain quality.

Unfortunately an issue remains in the sampling and reuse of Commons based works with restrictions beyond Attribution - such as Non Commercial and Share Alike, or similar copyleft mechanisms like GPL that require derivatives to use the same or equal license. If a staff member samples and remixes a work with such a restriction, the license on the original work requires specific restrictions be included on the derivative work. This may not be desirable or even possible in some situations for the Polytechnic and so, as a matter of simplicity and to ensure maximum flexibility in the resources, staff are encouraged to preference sampling CC BY, Crown of Public Domain works where possible, and to avoid using resources that have restrictions like Share Alike, Non Commercial or even more restrictive conditions.

[44] http://learnonline.wordpress.com/2006/10/03/out-from-under-the-umbrellas/
[45] http://learnonline.wordpress.com/2006/10/07/what-would-it-be-like-to-be-the-rain/
[46] http://wikieducator.org/Otago_Polytechnic/Intellectual_property

21.2.7 Working with Wikieducator

In mid 2007, following the agreement for a new IP Policy, many of the Flexible Learning Development projects began using the Wikieducator platform[47] to develop educational resources. To date there are at least 15 full time Otago Polytechnic lecturing staff and 5 part time designers regularly using the Wikieducator platform to develop their courses. This number is certain to increase as the teacher training schedules used by Otago Polytechnic include orientation and skills development in the use of Wikieducator as well as a number of other publishing platforms and media sharing services.

Benefits of using Wikieducator from the perspective of the Polytech include:

- Free content hosting
- Free and supported access to MediaWiki software
- Exposure, promotion and networking with other educational organisations
- Internationalisation and dialog with the Commonwealth of Learning
- Collaborative development opportunities and resource sharing
- Open access to learning resources
- Staff development of MediaWiki editing skills that are transferable to more popular MediaWiki based projects like Wikipedia, as well as the Polyech's own hosted MediaWiki.

Issues with using Wikieducator:

- Copyright issues - Wikieducator uses a site wide Share Alike copyright restriction without an option to mark a full project or individual resource with the Polytechnic's preferred CC BY license. This limitation in copyright potentially complicates the Polytechnic's developments on the platform, but work continues on a good will basis. To manage the risks in this, the Polytechnic's main page on Wikieducator[48] links to a copy of the Polytech's IP policy[49] which points out the use of CC BY that applies to all pages that are category tagged Otago Polytechnic[50] . This position has not become a concern to the Wikieducator hosting organisation but clarification on the issue is needed. This issue is argued in detail in the article Open educational resources and practices[51] .

21.2.8 A Wikieducator development structure, page templates and staff development

The Polytech's EDC encourages people who develop educational resources on Wikieducator to use a structure which aims to make resources on the wiki as reusable and open for collaboration as possible. Inspired by Steven Parker [52] and his ideas about activity sheets, as well as David Wiley's significant 2001 paper The Reusability Paradox[53] , this development structure revolves around the creation of **Learning Objective Pages**. Learning Objective pages express a set of learning objectives related to a particular skill or knowledge attribute. Two subpages attach to the Learning Objective pages: one being **Library of Resources** and the other being **Learning Activities**.

As developers and support librarians encounter information and media relating to the learning objectives in a Learning Objective page, the link for those resources is added to the Library of Resources subpage. As learning activities are devised, they are added to the list on the Learning Activities subpage.

Course Pages are developed separately from the Learning Objective Pages but are what bring a selection of Learning Objective Pages and their Library and Activities subpages together. The Course Pages are free to be contextualised to whatever the expressive needs of the course may be. Because the Learning Objective

[47] http://wikieducator.org/Otago_Polytechnic
[48] http://wikieducator.org/Otago_Polytechnic
[49] http://wikieducator.org/Otago_Polytechnic/Intellectual_property
[50] http://wikieducator.org/Category:Otago_Polytechnic
[51] http://wikieducator.org/User:Leighblackall/Open_educational_resources_and_practices
[52] http://networklearning.blogspot.com/2007/04/importance-of-activity-sheets-glue-that.html
[53] http://web.archive.org/web/20041019162710/http://rclt.usu.edu/whitepapers/paradox.html

Pages are simply linked to the Course Page and not subpages, they are effectively independent to the course, and so can be reused in other courses or for other purposes without the need for editing and renaming (for the most part anyway).

For this reason it is important that the Learning Objective pages are worded in such a way so as to be as reusable in as many different contexts as possible, and to leave contextualisation to the Course Page or to the various Activities listed in the subpage to the Learning Objective.

As Learning Objective Pages are picked up by different Courses then its list of Learning Activities will grow to reflect the reuse without affecting the reusability of the Learning Objective itself. A video explaining this structure is available on the Otago Polytechnic Category page on Wikieducator[54] .

In November 2007 Brent Simpson[55] developed the Otago Template Generator[56] , which aims to simplify the process of creating Learning Objective Pages and their Library and Activities subpages. Other work includes hacks for embedding media from popular media sharing services like Youtube and Slideshare, which is another outstanding issue with Wikieducator as we wait for the administrators to consider whether or not to support the functionality of embedded 3rd party media.

21.2.9 Vision for content developed on Wikieducator

Ironically, through developing curriculum and content on the Wikieducator platform, we are discovering more opportunities for local collaboration before realising benefits of international collaboration. Because of the open nature of the content, some of our teaching staff are discovering each other's work. This is in contrast to teachers working on a closed Learning Management System with a working environment that is isolated from other projects, and so staff in these environments are unaware of similar content being developed elsewhere on the platform, or are developing in such a way that makes it very difficult to collaborate and reuse in other areas.

Because of its open and accessible nature, development on the Wikieducator must also ensure quality controls such as copyright. The Wikieducator project requires that all content be cleared of restrictive copyrights and so has rendered the works very flexible and reusable. Again, this is in contrast to the closed development environment of the LMS where we find that there is very little quality control on copyright, and that a large amount of very restricted content is being used, which ultimately limits the flexibility and reusability of the resources being developed. In this sense, development on the Wikieducator is arguably more sustainable and is achieving more with the investment.

At the moment, developments on the Wikieducator are largely limited to basic text and images. The Commonwealth of Learning is investing in the development of functional enhancements to the Wikieducator that will gradually see more engaging formats being developed on the platform.

If the Commonwealth of Learning manages to encourage and coordinate investments from other participating institutions such as the Polytechnic, we will likely see rapid and well funded development that will build on the free text and image content that is currently being built. Such development would include software to enhance the Wiki environment as well as the creation of multi media educational resources.

The content on the Wiki is flexible and reusable enough to be used in a wide variety of contexts such as in an LMS, a face to face class, course blogs, email forums, mobile phones and PDAs, and other portable media such as print, CDs and cassettes. These types of further developments are made possible by the nonrestrictive copyrights, the consolidation of human and IP resources and the facilitation efforts of the Commonwealth of Learning.

21.2.10 Risks and foreseeable issues

Weblog based communication is still foreign and new to the majority of staff at the Polytechnic, and many struggle to see the value to them personally and professionally, or how they may begin to develop strategies to manage the time it takes to reading and/or writing weblogs.

[54] http://wikieducator.org/Category:Otago_Polytechnic
[55] http://wikieducator.org/User:BrentSimpson
[56] http://wikieducator.org/Template:Otago_Page_Generator

It would be reasonable to accept that the majority of staff will not want to keep a weblog or will not actively monitor the blogging efforts of their colleagues. While there are demonstrated benefits to those that do, a communication disconnect may emerge between those that do and those that do not, which could prove counter productive to the organisation as a whole.

While it is possible to compare this development to that of the uptake of email some 10 years ago, weblogging (both reading and writing) could just as easily not be following the same path as email. The Polytechnic will need to continue thinking about and developing communication strategies that are effective and useful to all staff, and carefully consider ways to scale the benefits of blog reading and writing so as to avoid any disconnection. Suggestions aimed at bridging different communication channels and reaching a wider range of readers include:

- Public press releases on a blog as well as their normal email and static webpage broadcasts.
- Staff updates on a blog as well as the normal staff wide email broadcast.
- Meeting minutes on a blog (or a wiki) as well as in archived text documents.
- Service department updates on a blog as well as the PDF attachments broadcast through email.

There are methods with which these additional communication channels can be utilised without double handling the message.

At present the EDC's leadership in the use of Weblogs, popular media and Wikieducator is occurring without close and regular consultation with the Polytech's IT support unit, the web publishing unit, the marketing unit, or the human resources unit. While this enables rapid development, it of course posses a significant risk to all those units should some aspect prove counter productive to the brief of one of those units.

The solution relates in part to the need for a better communication strategy, and one that includes participation by all who are affected. How to achieve this breadth of dialogue is an important issue that needs research and consideration, but at present EDC makes an effort to attend and update as many cross unit meetings and forums as practical.

Working to develop digital literacy and online networking skills with teachers instead of or before students may be less productive than working with students directly. This is an interesting proposition made by Russell Butson [57] of the Higher Education Department of the Otago University working in similar areas to the EDC.

It is possible that a large proportion of the teaching staff will feel that they have more to lose by participating in this effort. It may therefore be productive to work with students who arguably have more to gain in developing digital literacy and online networking skills given the relative early stages in their career paths.

By working directly with students it may help to benefit their learning objectives and career aspirations sooner, while helping teachers to observe more objectively the benefits and pitfalls to these new literacy and communication skills. Discussions continue with Russell Butson regarding his research into this approach to Educational Development.

21.2.11 Conclusion

Otago Polytechnic has taken rapid and significant steps in the direction of open educational resources and practices. In the space of less than 2 years it has positioned itself as a leader in New Zealand and Australia by being the first to develop and adopt an intellectual policy that encourages the use of Creative Commons licensing, and is proactively encouraging staff to experiment with and use popular publishing services in their professional work and learning.

So far the Polytechnic has chosen not to duplicate the features on these popular media services 'in house' and is seeking to maximise the benefits of using external services. In so doing, the Polytechnic is developing a strong and authentic online presence that is distributed widely. Staff are also developing

[57] http://hedc.otago.ac.nz/magnolia/RussellButson/About-Me/Publications.html

important literacies, transferable skills, and critical awareness of online communications that are relevant to life outside the Polytechnic, and to the Otago Community more generally.

The speed at which this change has taken effect in the Polytechnic has left some service areas unprepared, and is having both positive and negative effects on internal communication. So far the benefits are outweighing the disadvantages, and through continued staff development activities we expect that these disadvantages will diminish.

21.2.12 Comments

21.2.12.1 1. Wayne Mackintosh - November 29th, 2007 at 12:06 pm

Hi Leigh, Otago Polytechnic has established a global leadership role in the OER community and I'm very pleased to see your story receiving international recognition through sites lite Terra Incognita. Well done Otago Poly! You are providing us with the models we should replicate.

It's a significant case study because it encompasses both "top-down" executive support through a new institution wide IP policy and "bottom-up" innovation involving at least 20 FTE staff working tirelessly in providing students with a rich learning experience using OERs.

A little feedback on the CC-BY and CC-BY-SA licensing on WikiEducator. As you know, your "good will" is well placed in the WikiEducator community.

There has been open discussion about the dual licensing topic. I'm happy to report that there is a consensus opinion among active WikiEducators, that as members of the free knowledge community, we should respect and support authors who use less restrictive licenses, including contributors who wish to dedicate their work to the public domain. Its now up to the Interim Advisory Board to implement practical ways to protect the choices of the CC-BY authors - this wouldn't be too hard. This incorporation of CC-BY materials is a valuable addition to WikiEducator's generic share-alike license.

Onto more important issues. Otago Poly has firsthand experience of institutional transformation and adoption of OERs incorporating peer-production technologies (as opposed to producer-consumer models) . Next year, the Commonwealth of Learning would like to start a FTEs4WikiEducator initiative, whereby we challenge educational institutions to allocate two full-time equivalent staff to OER content development in WIkiEd.

Based on your experience - what advice can you offer institutions who are going to go down this path? What are the lessons learned? If anything, what would you have done differently?

Otago Poly's model is an important one and I'd like to figure out how we can replicate this model throughout the Commonwealth and further afield.

Great post Leigh. I'm off to post a front page news item over at WikiEd that an esteemed WikiEducator is over at Terra Incognito chatting about the Poly's experiences.

21.2.12.2 2. Leigh Blackall - November 29th, 2007 at 5:01 pm

Hi Wayne, thanks for the quick response and great news about the clarification on the copyright.

Regarding the FTEs4WikiEducator.. if such a thing was to become a reality, clearly it would have significant impacts on the development of free to reuse content and maybe even on professional networking and the like.. my first feeling was that such an effort may be too early (in NZ at least) as I don't get a sense that other institutions are aware of wiki development models and the like, and so may not give the proposal the due consideration. But in saying that, I am very impatient for more progress in terms of cross institutional collaboration and commitment to the development of OER.

Perhaps if we could have a range of highly presentable resources first. There are quite a few the the Commonwealth of Learning have funded, but more would be good. This would help those who are still in that "producer consumer" way of thinking to recognise worth in the wiki that will attract them to look deeper. And after looking deeper, we can expect they will develop more sympathy for the "work in progress" model and the very text and image format that is prevalent across the wiki. In my experience here at the Poly, the most difficult thing has been to get people to look beyond the 'text heavy' look and feel of the

resources, and to recognise the networking, and development efficiencies that can lead to the high production qualities that many are looking for.

Also, I think the Wikied could do more to placate the common worries of people who question the use of external services. Wikied has done well in trying to bridge the copyright divides.. but we need some sort of guarantee of service. So far, in the 12 months I have been using Wikied I have experienced only one short (a few hours) period of no access.. that was early on and since then it has had no issue. Something that guarantees service, outlines types of support, and some work in how to store data locally as well as on Wikied's international servers would be helpful.. local and offshore storage would go someway towards ideas for other concerns relating to over centralisation and putting all eggs in one basket.

What would we do differently? I'm not sure, I think it is still too early to say. One thing we need is better communication between our separate areas. Don't we all!! The problem of silos are certainly not as huge here at the Poly compared to some of the bigger institutions I have worked at, and I don't really have many ideas on how to bridge these problems accept to encourage more open communication and less invite only face to face meetings.. for this though, a fair bit of skills development would be needed - and this relates to the communication disconnect I mention in the article.

21.2.12.3 3. Wayne Mackintosh - November 29th, 2007 at 5:42 pm

Hi Leigh, Solid well founded advice as always. Quality is equally important for both open and closed models of production. However, its typically a harder sell when using peer-production models. We've started some work on the Learning Design processes and QA procedures in WikiEducator and it seems to me that we should encourage international participation in refining these processes.

You're absolutely right - academics find the work-in-progress a difficult concept yet its OK to have a work in progress model behind closed doors! Looks like an education task for us.

A very good point about guarantees of service. COL, of course, does everything it reasonably can to ensure this quality of service. That said, hardware does fail and the network can go down.

I've worked for Universities where the LMS was regularly out of service or shut down for regular maintenance - and folk used to accept this. However, when it's an external free service - the expectations on service delivery seem to be far higher — go figure!

As you've pointed out - WikiEducator's downtime has been far lower than industry standards for a comparable service of its size. I don't have the figures with me - but in the last 18 mnths we've had about 8 - 10 hours total downtime including software upgrades. We run a LAMP configuration and these machines just chug away . Two of these downtime instances were out of our control. In one case hardware failure and another where problem with the German ISP network. Most CIO's dream of this level of uptime! That said - it doesn't remove the perception of the perceived risk of external free services.

mmmm this has got me thinking - I wonder whether a model of shared financial responsibility for infrastructure services might be the way to go?

This way local institutions can then take shared responsibility and ownership of the services they support on campus - almost a Web 2.0 model of financing ICT services.

COL is like any business we do a proper cost-benefit and corresponding risk analysis in the way we configure our WikiEducator service. Its conceivable to provide guarantees for 24/7 support with synchronized mirrors all over the world - but current traffic levels wouldn't warrant the cost. Consequently shared decision-making over technical infrastructure — when folk are contributing real dollars to ensure their wish-list — may be the way to go here.

Great reflections and appreciate the candid reflections.

21.2.12.4 4. wikirandy - December 1st, 2007 at 2:36 am

Hi Leigh, I'm impressed by the breadth and depth of your contribution here, and your leadership within Otago, and the WikiEducator community.

Some observations:

1. This is a great case study to kickstart a dialogue among and within educational institutions as to the merits of pursuing an open educational content strategy, and by extension using WikiEducator as a development platform. I really like what you've listed as the benefits of working with WikiEducator. There might be one other benefit worth listing, and that is the "inside track / being part of a community of opinion leaders related to discovering / playing with new models for educational organisations to cut costs, improve productivity, discover new markets - you get the drift....
2. In the Vision for content developed on WikiEducator you mention...."Ironically, through developing curriculum and content on the Wikieducator platform, we are discovering more opportunities for local collaboration before realising benefits of international collaboration"...this is worthy of considerable exploration...another benefit to add to the list - breaking down of silos internally..increasing dialogue....maybe there's an opportunity for a panel discussion here...bringing in some diverse viewpoints for consideration....even from other fields.
3. Regarding who first - teachers or students...I'm of the view that you create a range of access points for people to become involved...and have each perspective inform the other - kind of like participatory action research...
4. Otago as a leader in NZ and Australia - you forgot to mention: "The World" - Your leadership, in your institution, and within WikiEducator has helped catapult both you and Otago to significant prominence in many quarters. As a fellow WikEducator, I value your insights, dedication and active involvement, commitment to the open educational content march, and clarity vision!

WikiEducators of the World Unite! :-) Randy

21.2.12.5 5. Ken Udas - December 2nd, 2007 at 10:51 am

Leigh, First, thank you for this very nice contribution! I am wondering if you could speak a bit to the nature of the decision and decision-making processes within Otago Polytechnic that led to adopting an open IP policy? We are currently poking around the edges here at Penn State and it would be great to get some insights from your experience. In addition, anybody else who has such experience (no matter what resulted), please feel free to contribute as well.

Cheers, Ken

21.2.12.6 6. wikirandy - December 2nd, 2007 at 1:57 pm

Hi Leigh, Adding to Ken's comments, if in describing the "decision and decision-making processes within Otago...", you could map it to an actual timeline, that would also be helpful. Might make a nice graphic! (However, the point is, that these things DO take time to evolve within institutions, and it would be useful to see the timeline.) - Randy

21.2.12.7 7. Leigh Blackall - December 2nd, 2007 at 11:08 pm

Hi Ken, Randy.

One key thing was that the old IP Policy here was long over due for a rewrite. We have an energetic CEO who had it pegged for a while now, and an upcoming audit that required it done.

The next thing was me addressing the leadership team and presenting an argument that said we needed an IP Policy that enabled us to sample copyleft content. My argument was that our copyright statement was too restrictive (all rights reserved) and that it effectively prevented us from being able to copy and reuse content from the likes of FlickCC, Wikipedia et al... We needed a Policy that would enable staff to sample media from these sources and then have the flexibility to mark their remixes with the license required by the copyleft material. I think I even put an estimate on the amount of money this might save the Poly. This raised interest and got me on the IP Policy team where I pushed for the adoption of CC BY.

In the IP Policy meetings it was evident that the main players in the rewrite saw the sense in CC BY and the benefits of enabling copy and reuse with attribution of Polytech materials. Thanks to their intuition for CC BY we were able to discuss more novel treatment of the Policy, rather than getting bogged down with

should we/shouldn't we kind of debates. It was a very encouraging team to work with. Interestingly, they had not heard of CreativeCommons before, but intuitively understood its benefits! Haven't met too many bosses like that before!

They also saw that it helped to solve a number of concerns such as if a staff member was to pick up and leave a big hole in the content we rely on, the Polytech would be able to refill that hole because the material would have been CC BY, meaning the Poly could reuse it. In the past, this risk of a staff member leaving and taking their files with them was managed by a rather draconian statement along the lines of, "you work for the Poly, we own your IP.." - which needless to say was a big concern to staff. Using CC BY was a way to say to staff that they own their IP, but the Poly encourages the use of CC BY, and if restrictions are needed then come and talk about it.

It took about 5 months to get the Policy agreed on by broader staff, with the draft being redone about 3 or 4 times. Interestingly, staff input was very positive and constructive, and to my knowledge no staff had concerns with the CC BY clause. It seemed that most of the concern was to do with making sure that the Poly did not claim ownership over staff or student IP, but that it would be there if staff or students needed backup from the Poly if copyrights were breached outside the Poly. To that effect the Poly is a custodian of staff and student IP, but does not claim ownership.

So it would seem that the Poly was more than ready for such a Policy and that all I had to do was introduce the CC licenses which are more than ready for adoption, and make a lot of sense to anyone willing to think about it.

Hope that helps to answer the questions. In all it was about an 8 month process, with many things falling into place without too much issue. I was expecting a far greater fight. So full credit to the foresight and leadership from the CEO and dep CEO for their support, and to the Otago Poly staff who helped to make is clear and meaningful on all points of concern.

21.2.12.8 8. cormaggio - December 5th, 2007 at 1:13 pm

Thanks for this great piece Leigh. I think what you've just written about Otago's licencing policy reflects very well on Otago Polytechnic, its leadership, and your role within this process - however, I'm not sure if it would be as positive a process in all institutions! But it's very nice to hear of positive case studies (even though you outline a number of challenges too). Of course, I'm also interested in this from the perspective of what Wiki*versity* can lean from your and your colleagues' experiences with using WikiEducator - and how we can similarly facilitate educators to create, manage and remix content. You've certainly given me much to think about... :-)

21.2.12.9 9. Ken Udas - December 5th, 2007 at 3:54 pm

We are going to try something new. Leigh Blackall has suggested that we do a synchronous web-conference to discuss aspects of the Otago Polytechnic experience, OER, and other aspects of his posting. The conference time is set for Friday, December 7, 2007 at 12:00 noon Eastern Standard Time, which would be December 7th at 17:00 Greenwich Mean Time, and December 8th at 6:00 (AM) New Zealand Daylight Time. We are planning on an hour-long session. The event will be recorded and made openly available. Special thanks to Leigh for getting up early Saturday morning!!!!

(A recording of the conference is available[58])

Hope to see you there!

21.2.12.10 10. wikirandy - December 10th, 2007 at 10:06 am

Hi Leigh, I am breaking up my response in several posts, based on several themes:

1. Your Comment: "So full credit to the foresight and leadership from the CEO and dep CEO"

[58] http://elluminate.tekotago.ac.nz/play_recording.html?recordingId=1196885988687_1197045665062

Great! Now, how have you sought to reinforce to them that they have made the right decision? Does this come in the form of summaries, progress briefs, or other communication? Is there some regular frequency to this? Are you continuing to add a dollar value to the savings generated by the migration to WikiEducator? Are there other things to communicate to the CEO, dep CEO? I'm thinking increased flexibility, easier access to partnerships, etc.

What I'm trying to say here, is that it's important to keep priming the pump....keep people energized, caring and involved...and feel that they've made the right decision....Here's an example: Do you know that in the spring, the US car companies put on a big push to sell cars....yet, in the fall, there are more car commercials than ever? The reason is, is that the car companies want to make sure that the people who buy their cars are actually happy with their purchase. They know, that the average person buys 5-7 cars during their lifetime...which means big bucks to them...when you leave one car company for another, you're likely NEVER to come back....so these car companies put a lot of effort into making sure you're happy with your purchase...and being reminded of the worthiness of YOUR DECISION is an essential ingredient in the mix!

- Randy Fisher aka Wikirandy

21.2.12.11 11. wikirandy - December 10th, 2007 at 1:18 pm

Hi Leigh, An estimate of the amount of money is important, yes. It's important also to keep a running tally of the Total Lifecycle Cost of doing one thing over another...This is a great way to 'reframe' a discussion, into the parameters that executives are measured...(i.e., how much money did you save us, or make us, AND variations on the theme.

Regarding your comments on "the benefits of enabling copy and re-use with attribution" – if there is some way that you can quantify this in terms of monetary savings or gains, that is helpful. Then, also note the other benefits, such as increased institutional flexibility, educator skilling, scheduling freedom, etc.

Regarding the 'readiness' of such a policy, it would be useful to dig into what 'readiness' actually means to the decision-makers. What I'm getting at here, is if they are provided with supporting data – particularly in terms of how much MONEY they can make or save, this has a very strong hand in moving along "readiness" even accelerating it. Throw in the other "benefits", and trusted people – yep, that's you Leigh and your visionary, yet grounded colleagues – to get it underway – and it's a done deal!

- Randy Fisher aka Wikirandy

21.2.12.12 12. Ken Udas - December 11th, 2007 at 5:46 am

Hello, I have a more or less general question, perhaps too broad, but open to anybody who has thoughts, based in practice or otherwise. It seems that the effort at the Otago Polytechnic is focused on use, reuse, and sharing. This is a bit different than a lot of other OER efforts that seem more focused on publishing free content for others to use. First, is this observation accurate, and if so, how do you see organizational policy developing that promotes faculty using open content generated or modified by others in addition to faculty developing and sharing content intended for the use of others?

Cheers, Ken

21.2.12.13 13. Leigh Blackall - December 11th, 2007 at 4:33 pm

Hi Ken, you are right! Well seen. I have been critical of the likes of MIT Open Courseware as in fact not being open. Restrictions like Non Commercial, and even development processes not being open say to me that they are not open courseware but simply free courseware. I even think that sooner than later they will simply be courseware, when all this copyright fog finally lifts from education and the idea of common good...

Yes, Otago is focused on open educational resources AND practices which covers the three areas you site, and the same three areas of freedom defined in OER and software. So, here there is a big emphasis on staff development and building informal but professional support networks and communities of practice. Anyone that looks at our work on Wikieducator will see that it is very much a work in progress and always will

be. It is not the most important aspect to us. It is developing the capacity and culture in our staff that is arguably the most important.

Randy, to answer your question regarding how we keep the feedback loop alive with the bosses. It seems that the attention from outside is what keeps that happening. Every time the Commonwealth of Learning publish a report about our work, or Penn State, or the local paper, or the Student's Association.. that reaches the bosses here. At the same time we keep them informed via the traditional communication channels that are in place.. but increasingly we are using the newer communication channels and there is the potential for a communication disconnect that I mention in the article. Again, it comes down to developing better communication skills with staff, so it may mean our bosses have to join in on the staff development activities or risk the disconnection, or pull it back.. its a potentially large problem. At the moment, the outside interest is helping. It also helps to have outsiders interview and then report on our work. It offers a fresh perspective and critical feedback that we need. Especially for us being so regional, even in our own country.

21.2.12.14 14. Rakhi - December 18th, 2008 at 3:57 am

You can also try another issue tracking software, it is open source off-the-shelf application called Eventum.

Eventum is written in PHP programming language and uses MySQL database and is available under GPL and developed by MySQL AB Team. Know about eventum features and advantages; just visit our website:

http://www.open-source-development.com/[59]

http://www.open-source-development.com/eventum.shtml[60]

21.3 Web Conference - Leigh Blackall[61]

We are going to try something new. Leigh Blackall has suggested that we do a synchronous web-conference to discuss aspects of the Otago Polytechnic experience, OER, and other aspects of his posting. The conference time is set for Friday, December 7, 2007 at 12:00 noon Eastern Standard Time, which would be December 7th at 17:00 Greenwich Mean Time, and December 8th at 6:00 (AM) New Zealand Daylight Time. We are planning on an hour-long session. The event will be recorded and made openly available. Special thanks to Leigh for getting up early Saturday morning!!!!

Here's a link to the recorded Elluminate session [62] (no password needed).

21.4 Summary[63]

"Educational Development at Otago Polytechnic," the eighteenth installment of the Impact of Open Source Software Series, was posted on November 28th, 2007, by Leigh Blackall. Leigh currently serves as an Educational Developer at the Otago Polytechnic[64] in Dunedin, New Zealand, and blogs his work to Learn Online[65] . Thanks Leigh for a great posting!

In his posting Leigh provides a nice introduction about the Otago Polytechnic and the Educational Development Centre (EDC), which provides staff development, online and flexible learning development, and research into educational development. He also connects EDC activities with staff development supporting weblogging and digital literacy.

During this same period in which the EDC was supporting capacity development, a related set of policy changes were underway in which the Polytechnic's intellectual policy was re-crafted to support the use of the Creative Commons Attribution (CC-BY) license.

[59] http://www.open-source-development.com/
[60] http://www.open-source-development.com/eventum.shtml
[61] This content is available online at <http://cnx.org/content/m19876/1.1/>.
[62] http://elluminate.tekotago.ac.nz/play_recording.html?recordingId=1196885988687_1197045665062
[63] This content is available online at <http://cnx.org/content/m19877/1.1/>.
[64] http://www.otagopolytechnic.ac.nz/
[65] http://teachandlearnonline.blogspot.com/

Leigh described how increased competency in the use of wikis and weblogs, the adoption of an open content license, and the use of WikiEducator supported the development of a wiki-based learning design and content development model that enables content sharing and reuse. He ends his posting by indicating that there are challenges and risks associated with wiki-based content development.

21.4.1 Comments

This posting attracted a number of comments, questions, and responses. There were comments about license compatibility and support of various open licenses on WikiEducator. In addition, there was a thread of questions and responses that were generally about the "hows" and "whys" associated with adopting an open license as a matter of policy at Otago polytechnic.

In addition to the posting and comments, Leigh ran a web conference, which was a first for this Series on Terra Incognita. I thought it was great and a number of others have communicated this sentiment also. A recording of the conference is available[66] . No password is necessary.

Thanks again to Leigh for his interesting and insightful post, responses, and web conference, in addition I want to extend a big thanks to Wayne, Randi, and cormaggio for making this a great exchange, and other folks who have been reading along and participated in the web conference. Please feel free to continue the dialog. This posting takes us to the end of 2007.

Please stay tuned as the schedule for next year is developed. In addition, all suggestions for the Series (improvements, ideas, comments, etc.) and recommendations for contributors are VERY welcome. The schedule for the series can be found on WikiEducator[67] .

21.4.2 Comments on Summary

21.4.2.1 1. Leigh Blackall - December 12th, 2007 at 3:54 am

Thanks for having me Ken. It is always good to have a chance to vocalise thinking and bounce off others. Writing and discussing through Terra Incognita has helped me to reflect on what we are doing, and to identify and wrestle with some of the issues we have. It has been interesting to see what the comments identify with, and to have a chance to expand on points of interest. I hope that in the future more people like you will approach us and we have a chance to develop a sustained relationship in developing resources and practices. One such area for potential collaboration is staff development of digital and networked literacy. The courses we run for our staff (mentioned in the article) are open to outsiders, and we are always keen for guest lectures from other institutions. Maybe this is one areas where we could mutually assist each other.. regards Leigh

21.4.2.2 2. Ken Udas - December 20th, 2007 at 5:49 am

Leigh, Thank for sharing with the community. I very much enjoyed the posting, dialog, and the web-conference, and I know others did as well. In addition, we are in the process of ramping up our faculty development and support activities, and will likely be in touch with you soon.

Cheers & Thanks Again! Ken

21.4.2.3 3. Ukwebco - December 31st, 2007 at 1:01 am

Educational development centre at Otago polytechnic is a part of open source software program which provides online and flexible learning development, staff development and research into educational development.

21.4.2.4 4. Andrew Plimmer - December 31st, 2007 at 1:16 am

Hi Leigh, Your work is quite recommendable in educational development centre. And above all you have always given priority to readers comments in this regard and tried to increase its standard.

[66] http://elluminate.tekotago.ac.nz/play_recording.html?recordingId=1196885988687_1197045665062
[67] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

21.4.2.5 5. Philips - December 31st, 2007 at 1:39 am

Leigh has brought about a related set of policy changes in Otago polytechnic's EDC in which the intellectual policy was re-crafted to support the use of the Creative Commons Attribution (CC-BY) license.

21.4.2.6 6. Andy - December 31st, 2007 at 2:04 am

There are always challenges and risks associated with open source software like wiki-based content development. The adoption of an open content license, and the use of WikiEducator have further contributed to the development of a wiki-based learning design and content development model that enables content sharing and reuse.

Chapter 22

Can OER Really Impact Higher Education and Human Development? (Christine Geith)

22.1 Introduction - Christine Geith[1]

I want to welcome Christine Geith and thank her for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Her post is scheduled to appear on February 1st, 2008 (eastern U.S.). Christine will be writing about how OER may be shaping the future of a new type of university. Will online learning go away? is there a new opportunity to serve an underserved market? Can current institutions in higher ed figure out how to use these new resources as part of current business practices? The Open Educational Resources (OER) movement around the world is rapidly gaining momentum and taking shape. For example, the Open CourseWare Consortium[2] is scheduled to officially become a non-profit association during the next couple of months and already has over 170 institutions around the world sharing over 5,000 courses. This week, the Cape Town Open Education Declaration[3] officially launched its global call to action. Corporations with content are starting to get involved. Governments are declaring OER as key strategies. And, ideas for new OER universities are emerging.

[1] This content is available online at <http://cnx.org/content/m19866/1.1/>.
[2] http://www.ocwconsortium.org/%3Ehttp://www.ocwconsortium.org/
[3] http://www.capetowndeclaration.org/

Figure 22.1: Christine Geith

Christine is an assistant provost and executive director of Michigan State University's MSUglobal[4] , the university's entrepreneurial business unit that works with academic partners across the campus and worldwide to develop online institutes, programs and services. She is responsible for developing strategic frameworks and business models and leading all activities that impact revenue growth.

I met Christine over a year ago at a meeting organized at the Commonwealth of Learning[5] , where we discussed the use of MediaWiki and related FLOSS technologies and free cultural works for eLearning to reduce access barriers to education. I am very much looking forward to Christine's posting, which will point to something that a lot of folks have been talking about, few institutions have commitment to, and no institutions, that I am aware of, have used as first principles when founded. Christine captures this with an intriguing question, "*Can the OER movement birth a new university?*" Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

22.2 Can OER Really Impact Higher Education and Human Development? [6]

NOTE: Author - Christine Geith, "Can OER Really Impact Higher Education and Human Development?" Originally submitted February 1st, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

Open Educational Resources (OER) are rapidly growing and taking shape. What might it mean for higher education? The movement holds promise for opening up access and improving the quality of higher education around the world. It could even create new types of universities.

22.2.1 But, haven't we heard this before?

In the early to mid 90's, online learning held similar promise. Early adopters of online learning also focused on access and quality. The web enabled exciting new ways to design and deliver student-centered learning; it enabled the convenience of anytime-anywhere education.

Yet, when you look at online learning's impact, at least in the U.S., it has not delivered on the promise of increased access[7] (for quality it has faired better). Nor is online learning the disruptive innovation it was

[4] http://www.msuglobal.com/
[5] http://www.wikieducator.org/Tectonic_shift_think_tank
[6] This content is available online at <http://cnx.org/content/m19864/1.2/>.
[7] http://www.distanceandaccesstoeducation.org/contents/JALN_v12n1_Geith.pdf

hyped to be in the 1990's. OER shares some of the characteristics of online learning. We can look to online learning as a guidepost to OER.

22.2.2 Can OER live up to its promise?

Viewed as content alone, it is likely that OER will become another incremental innovation: it is an extension of existing higher education activities; it provides more options for learning and it expands reach to include those not typically served by the institution. In this way, it expands access – access to resources. But resources are only part of what is needed.

OER promises cost-reducing efficiencies. Using OER to produce teaching materials lowers costs of creation and distribution. Low-cost or free textbooks, video lectures, handouts, etc. are important for increasing access to resources around the world. New systems could be built on these efficiencies that could make education less expensive, while still being local and personal. Low-cost models have been implemented using online learning. For example, you can now earn a U.S. regionally-accredited master degree online for $4,900[8]
.

At least one concept for a new university has been discussed that is based on the efficiencies of OER content. For example, Jim Fay, California State University, and Jan Sjogren, Argosy University, proposed an open source online degree-granting institution at the Fall 2007 MIT-LINC[9] meeting. Their Open Source Online University is modeled after a traditional university in structure and functions. It uses the innovation of OER to lower costs and increase scalability by creating a new publishing mechanism for faculty while it creates a global online open curriculum, with many variations, to be openly shared around the world.

OER are also communities. From this point of view, OER may be able to have a bigger impact on access, equity and quality because it is imbedded in a network of people and organizations that collaborate and share similar goals. Wikieducator[10] is a good example of OER as community. Recently celebrating 2,500 users and 100,000 edits, Wikieducator has the makings of the kind of "digital university" described by John Seeley Brown and Paul Duguid[11] in their landmark paper from 1995. It is more likely that new solutions for access will come out of these kinds of community models.

22.2.3 What is the problem we're trying to solve?

Perhaps the goals of access, equity and quality are too vague – what are we really trying to achieve? If we are trying to address the global need for higher education - the gap of 150 million more college graduates[12] that Sir John Daniel of the Commonwealth of Learning talks about – then we need to think beyond traditional, formal higher education institutions as the means to closing the gap. We need to focus on the end goal – human development.

One solution is to bridge formal and informal learning. In the U.S., nearly 13% of all adults who use the Internet have taken an online class. The Pew Internet for Life[13] project, estimates that 160 million adults use the internet and that 20.8 million say they have taken an online course for personal enrichment or fun. That total is significantly higher than those participating in higher education. Likewise, OER's biggest users, according to the MIT data, are self-learners. What can we do to help these self-learners[14] earn a degree? For decades, adult-serving institutions have been enabling learners to maximize their experience for transfer credit. We can look to them for models.

A model in the form of a virtual university is the Western Governor's University[15] (WGU). Celebrating 10 years and 8,000 students, WGU is one model that did come out of the 90's heyday of online learning's promise. It is a competency-based assessment-only university accredited by four of the six accrediting bodies

[8] http://www.ace.edu/prospective_tuition.asp
[9] http://linc.mit.edu/events/2007/2007LINCBook.pdf
[10] http://www.wikieducator.org/Main_Page
[11] http://www2.parc.com/ops/members/brown/papers/university.html
[12] http://www.col.org/colweb/site/pid/4254
[13] http://pewinternet.org/trends/Internet_Activities_8.28.07.htm
[14] http://ocw.mit.edu/OcwWeb/web/about/stats/index.htm
[15] http://www.wgu.edu/index.asp

in the U.S. (an innovation in itself). To earn your degree, you work with an advisor and a rigorous assessment process to demonstrate that you've achieved the knowledge, skills and behaviors required by the competencies defined for your degree. Following in the footsteps of other adult-serving institutions, it doesn't matter how you earned the knowledge, but that you can provide evidence of your achievement.

Another model for bridging formal and informal has been proposed by Jim Taylor at the University of Southern Queensland. Taylor describes a concept for an Open Courseware University.[16] In this model, self-learners using OER from Open Courseware Consortium[17] members would be supported by volunteer tutors and gain credit on-demand from providing institutions. Credits earned in this way from various institutions would be aggregated by a new mechanism that would award accredited degrees. This model lowers costs and increases scalability by using innovations in academic support and accreditation to leverage online learning using OER.

22.2.4 Conclusion

Unless a new solution to the world's higher education gap is created out of the strengths of OER, and online learning, these promising innovations will have limited impact in terms of increasing access. They will certainly be used by faculty and institutions to increase the quality of their offerings and to extend their reach from existing activities. We can go a long way through incremental innovations to existing practices. But, online learning and OER alone will not be enough to make a dent in closing the gap. We need creative ways of bridging informal and formal learning. We need teaching, learning and student support systems enabled by the efficiencies of OER and online learning. We need to expand the frame of the problem, and therefore the solutions, in terms of both the means (institutions) and the ends (human development). By focusing on solutions for human development, we can realize the unique strengths of OER and online learning as significant innovations.

22.2.4.1 1. Steve Foerster - February 1st, 2008 at 11:00 am

Taylor's "Open Courseware University" is a spin on the longstanding model of separating instruction from evaluation. Students in many countries can already prepare for credit-bearing examinations from the University of London External Programme and the like by learning the material at third party tutorial colleges. OERs could fit into such a system in many ways, such as through a consortium of tutorial colleges who would like to lower the costs of curriculum development through that sort of cooperation.

The issue that raises is that of the role of the private sector. Much of the growth of open source software has come from private companies that release their software openly to build a user base and to get attention, with a revenue model of selling ancillary services such as technical support and customization. Similarly, there's room for proprietary institutions of higher education to develop OERs, especially institutions that understand the difference between instruction and evaluation and have a revenue model based primarily on the latter.

22.2.4.2 2. sehrmann - February 1st, 2008 at 5:00 pm

What we're doing with the Web is a signal that Open Source is significant. We do need to beware of 'rapture of the technology,' however, and the other features of technology that have led to so many frustrations in past decades.

I wrote about some of those self-defeating features a few years ago, and made some suggestions about how to get past those barriers.

http://www.tltgroup.org/resources/V_Cycle_of_Failure.html[18]

Most of these barriers, and strategies, are just as relevant to this generation of technology as they were to the previous ones.

[16] http://www.usq.edu.au/electpub/e-jist/docs/vol10_no1/papers/full_papers/taylorj.htm
[17] http://www.ocwconsortium.org/
[18] http://www.tltgroup.org/resources/V_Cycle_of_Failure.html

22.2.4.3 3. Leigh Blackall - February 2nd, 2008 at 3:55 am

Recognition of Prior Learning and Assessment of Prior Learning are increasingly common services in Australia and New Zealand. RPL is generally known as a process that simply recognises the prior educational achievements of the candidate and aligns them with the assessment process being applied. APL is more along the lines of what you call for I think. It is more like an interview process where a trained assessor will assist the candidate to express what they know so as to meet the assessment criteria. APL is not as common as RPL in Aust and NZ, and many institutions implement the services very poorly, often resulting in the candidate electing to simply do the course to avoid the strain in the RPL or APL process!

I agree though, that it could be through these processes that an education through OER could be obtained. Institutions already working in OER have a head start, because they are familiar with their own OER. Assessing the learning done through another institution's OER would be more difficult however.

I also agree that "competency standards" potentially gives OER currency in the assessment process. If an international initiative to develop AND maintain competency standards was established, then OER developers could look to them as assessment guides, learning objectives, content structure, even a base level curriculum... but establishing an internationally agreed set of competency standards AND maintaining them into the future is a pretty hefty thing.

I think a wiki is the natural place to develop such a thing however. We are seeing many many different courses, content and worksheets being developed on the platform, but little scope for an agreed understanding that will assist the migration and cross institutional accreditation and assessment that could make

OER a very significant pathway for education. I know that Australia and New Zealand both have comprehensive competency standards:

Australia = NTIS[19]

NZ = NZQA[20]

And Wikibooks has the entire South African Curriculum[21] !

So... should the educational institutions devote one employee to work on developing, negotiating and maintaining an internationally recognised wikibook of competency units to use as an OER reference point?

22.2.4.4 4. Leigh Blackall - February 2nd, 2008 at 4:08 am

umm. one employee each that is ;)

22.2.4.5 5. prawstho - February 2nd, 2008 at 7:49 am

Can OER impact Higher Education?

I believe it already has and the evidence comes from places like MIT's OCW (http://ocw.mit.edu/[22]) and the success of initiatives like the open courseware consortium (http://www.ocwconsortium.org/[23]). The amount of impact is greatest in countries outside of the "developed" world where they struggle with the costs of producing materials, wikibooks (http://en.wikibooks.org/wiki/South_African_Curriculum[24]) is a good example of this. I believe these current offerings of OER have created much dialog, even among the most traditional and proprietary institutions of higher ed. I believe this dialog is having an impact. Do I believe OER will CHANGE the nature or structure of higher ed institutions in general? No. New "global" institutions may form that use OER extensively, some institutions, departments, faculty... may move toward an OER based model with there content. I believe that Higher Ed is about individuals (and the collective) connecting with knowledge and taking ownership of the knowledge to make it their own. Once owned, mastery can be achieved, (outside of research) this is the goal of higher ed. To make new researchers who have mastered the knowledge of a domain and then, in turn, create new knowledge... So it is not the OER

[19] http://www.ntis.gov.au/
[20] http://www.nzqa.govt.nz/
[21] http://en.wikibooks.org/wiki/South_African_Curriculum
[22] http://ocw.mit.edu/
[23] http://www.ocwconsortium.org/
[24] http://en.wikibooks.org/wiki/South_African_Curriculum

that creates the mastery, it is the process, experience and intimacy with OER (or any educational resource) that creates the mastery. This will not change and this is the "mission" of higher education, mastery is about the process not the resource. This then leads into the second half of your question.

Can OER impact Human Development?

Yes. I believe that all things Open are having an impact on human development. There is a growing acceptance of all things Open and a move away from those that are proprietary. This is evidenced by the global acceptance (and success) of Open Source software, of blogging (which is open knowledge exchange), of file sharing, of wikis, of microfinance (I know that is a stretch, but I do see microfinance as the open sharing of financial resources). It is this openness (and altruism) that is changing development. So back to mastery... If individuals (or collectives) take ownership of knowledge, learn it, massage it, alter it, add to it, localize it and re-release it as OER and then another individual (or collective) does the same, all within a framework of a "borderless" OER supporting infrastructure then OER and related approaches has had a huge impact on human development. I do see our present focus upon the OER is only half the equation, it is also an OER infrastructure (that is more in its infancy) that will really push all this along. The ability to utilize OER, alter it, add to it, localize it and re-release it, takes infrastructure, a global infrastructure. An infrastructure that includes versioning, histories, branching (which is particularly important for localization), cross referencing, licensing, etc... I look forward to seeing what OER and its related infrastructure looks like 15 years from now.

22.2.4.6 6. jsener - February 2nd, 2008 at 7:12 pm

As someone who is just beginning to learn more about OERs, I'm not sure how to answer the question of whether it's living up to its promise, since I'm not exactly sure what its promise is. After reading some initial background materials (the OCWC site and the Cape Town OED site), the promise of OER is not that much clearer to me. As others have already pointed out, its impact apparently will be felt in places where educators lack resources but have the motivation to take advantage of access to free content. To get a better assessment about the perceived impact of OER, I'd go and ask some of the signatories of the Cape Town Open Education Declaration why they signed it. Why are there so many signatories from Poland, for example? What do they see in it?

The main issue I have with OER at the moment is that education is about a lot more than content, as Gary and others have pointed out. The OCW Consortium Institution Memorandum of Cooperation (the document which truly defines what it means to participate in making OERs available through OCWC; see http://www.ocwconsortium.org/ocwcforum/docs/MOC_Institution_090406_OCWC.pdf[25]) specifies that "high-quality university level educational materials" implicitly vetted by higher education institutions is the admission ticket to the OCWC. Based on this definition, OERs are a relatively small piece of the entire puzzle. Education is an entire infrastructure in which content resources are an important component but certainly not the only one.

OERs appear to be very useful in some contexts, but hard to see how free content by itself will result in sweeping change – certainly not on the scale implied by the sweeping statements of the Cape Town Open Education Declaration, particularly in its opening statement that "Educators worldwide are developing a vast pool of educational resources on the Internet, open and free for all to use. These educators are creating a world where each and every person on earth can access and contribute to the sum of all human knowledge." Based on how OER is defined in the declaration, this statement reflects a confusion between education and knowledge and between education and learning, as if education is generated just by content-learner interaction. The second sentence is just plain pompous in its overreaching assumptions. When will everyone on the planet have access to this world of ubiquitious access? It reminds me of the label "No Child Left Behind," frankly. It also assumes that OER will somehow become the focal point for human knowledge generation and that faculty-created and university-vetted course materials are the principal engine for human knowledge generation. I don't buy it — how is OER any more a world for generating human knowledge than Google or the Web itself?

[25] http://www.ocwconsortium.org/ocwcforum/docs/MOC_Institution_090406_OCWC.pdf

Even as content, many OERs are of limited value. For example, the recent launch of Open Yale Courses exquisitely illustrates how educators can confuse content delivery with learning, with the result being open courseware of dubious quality. [also see http://senerlearning.com/?q=node/167[26]]

Even with highly regarded open courseware such as offered by MIT's "international Internet guru" Professor Walter Lewin, [also see http://senerlearning.com/?q=node/171[27]]

MIT itself has noted the limitations of this approach and is moving away from it with its residential students. [also see http://senerlearning.com/?q=node/172[28]]

What's disappointing to me about the OCWC and CTOED sites so far is that I did not come away with a clear sense of what kind of impact OERs are making. So, perhaps OERs will have a huge impact for some learners and be an incremental innovation in other respects. Perhaps there are some unforeseen, serendipitous events which will change its effect. But I haven't yet seen any visible reasons to expect a huge impact. Has someone else?

BTW, I also disagree with the assertions that online learning in the U.S. "has not delivered on the promise of increased access" and has fared better for quality. There are now over three million online learners annually in U.S. higher education and probably over 12 million cumulatively since its inception. The majority of this has happened at community colleges, for which access is an integral part of their mission. How does this not represent an increase in access? While I think that online learning has finally succeeded in establishing a perception and reality of quality, IMO this still lags behind relative to its achievements in improving access. If online learning failed to deliver relative to some of its initial hype, the fault is with the hype.

22.2.4.7 7. christine geith - February 2nd, 2008 at 8:12 pm

Thank you all for your comments so far.

I asked this question on LinkedIn and there are some interesting answers there as well, see http://www.linkedin.com/answers/career-education/education-schools/CAR_BUE/165435-82692?browseCategory=CAR[29]

Also, Stephen Downes noted the posting in OLDaily yesterday http://www.downes.ca/news/OLDaily.htm[30]

Answering John Sener's questions about access - yes, the numbers are impressive, but when you dig deeper, they don't appear to have resulted in any more degrees being produced in the U.S. (one measure of access) - you'll be able to see our argument when the paper I did with Karen Vignare goes live here in the next day or so at http://www.sloan-c.org/publications/jaln/index.asp[31] and to the international series at http://www.distanceandaccesstoeducation.org[32]

Thank you Steve Foerster for suggesting a look at the University of London External Programme - your idea for a consortia of tutorial colleges is a model to consider.

Leigh Blackall makes a bold suggestion and call to action for developing global competency standards - any takers? How about a pilot program - Leigh already has a start on tour guiding using the New Zealand standards at http://www.wikieducator.org/Tour_Guiding[33]

prawstho makes the case for a more robust infrastructure - even if it's 15 years out - for further thinking here, the Hewlett Foundation report by John Seeley Brown, Dan Atkins and Allen Hammond has a high-level description of what they call an "Open Participatory Learning Infrastructure" http://www.oerderves.org/?p=23[34]

Steve Ehrmann, gives us some good advice in the link to his paper - "Technology and Revolution in

[26] http://senerlearning.com/?q=node/167
[27] http://senerlearning.com/?q=node/171
[28] http://senerlearning.com/?q=node/172
[29] http://www.linkedin.com/answers/career-education/education-schools/CAR_BUE/165435-82692?browseCategory=CAR
[30] http://www.downes.ca/news/OLDaily.htm
[31] http://www.sloan-c.org/publications/jaln/index.asp
[32] http://www.distanceandaccesstoeducation.org/
[33] http://www.wikieducator.org/Tour_Guiding
[34] http://www.oerderves.org/?p=23

Education: Ending the Cycle of Failure[35] ." In it, he suggests 7 strategies for a revolution including #1 Form a coalition - "...campaign to build support for the necessary constellation of changes in curriculum, staffing, faculty development, library resources, technology support, and assessment." I'd say by the way OER is shaping up, these things are starting to happen which bodes well for OER's success.

HOWEVER, as John Sener points out, much of the coalition building and many important developments are still under the radar for many who could be partners in OER's development. As your comments have pointed out so far - many of the components for OER's success are here or emerging: we have models, we have the start of competency standards, we have the beginning infrastructure, and we have some of the important makings of a revolution.

How can we get the word out and invite more thought-leaders and action-takers to participate?

22.2.4.8 8. Educational Imaginations - February 4th, 2008 at 8:21 am

Alternative Models of Higher Education...

Ahh, now this is nice. Writing for Terra Incognita (the blog of Penn State's World Campus), Christine Geith searches for alternative models of higher education (here). She finds several, although evidently none which satisfy her fully. Ostensibly wri...

22.2.4.9 9. Ken Udas - February 5th, 2008 at 5:54 am

Follow Up To Leigh Blackwell

Hello Leigh, good to hear from you. I do not believe that there is a competency framework on the national level in the United States for tertiary education/study. This probably holds true for States also. I would think that in the US we would have to refer to certification, registration, and accrediting bodies to collect competencies for specific trades (pipe fitting, crane operation, electrical, etc.) and professions (nursing, engineering, teaching, law, etc.) and then build out OER (content and assessment). I would guess that a first port-of-call would be with tertiary institutions that are involved with preparing learners for professional that require competency based review for professional certification to practice. When I think about this, the task becomes a bit daunting. That said, the payoffs could be significant for self-directed learners, learners with financial challenges, and learners who have very restricted access to traditional educational programming (incarcerated for example). Am I wrong? Does anybody know of anybody in the US that is talking, thinking, or doing something about this?

22.2.4.10 10. Leigh Blackall - February 5th, 2008 at 6:24 pm

Hi Ken,

I reckon the first step would be to look at existing competencies internationally and see how useful they are to teachers in your local industries... the Australian or NZ units could offer a basic structure and expression standard that your people could use to build from, if only to begin thinking about your own versions, but more importantly I think, with a view to internationalising all our qualifiactions. Because the US doesn't have units, I'd imagine it would be difficult for Australian and New Zealand workers to get immigration approval or recognition of their qualifications in the US. Not to mention people from other nations, or alternative approaches to learning. But thinking about it the other way around, US qualifications that somehow used or were measured with Australia/NZ units would more easily be recognised in Aust/NZ...

22.2.4.11 11. christine geith - February 6th, 2008 at 12:26 am

Posted at the request of Paul West:

Christine

You have touched on a few interesting points. We need new methods of reaching more people and it will take more than one world project to accomplish this. There should be space in this "market" for many

[35] http://www.tltgroup.org/resources/V_Cycle_of_Failure.html

providers from free, informal, non-formal and every kind of formal education imaginable - from government to non-profit and for-profit. Lifelong learning is all very nice for all of us wanting to learn something, but a lot of people I meet want to get a qualification from an institution and they want that qualification to mean something when they apply for a job in another country.

The Virtual University for the Small and Island States of the Commonwealth (VUSSC - http://www.col.org/vussc[36]) is a network of Ministries of Education of the small states to help build capacity of national institutions to introduce new courses and add capacity to institutions. It should also help to provide for the transfer of courses, qualifications and learners between countries. Therein lies another of your points - the qualifications framework. Many countries have or are working on a National Qualifications Framework which is normally run by a National Qualifications Authority. With the VUSSC initiative, we hope to support the further development of national qualification frameworks (especially in countries where these are not as advanced) and to improve the transfer of qualifications between countries. The aim of the "Transnational Qualifications Framework" is to provide a translation point between national qualifications frameworks. This could help to reduce the need for bilateral agreements, thereby potentially speeding the process.

I injected the concept of an open version of qualifications standards to the expert team working on the concept and also with few ministry officials involved in these authorities. This open concept as an alternative to national standards did not seem to be a credible alternative. Not knowing who set the standard and having a standard that could change at any time seemed to be a damper. You can understand that national qualification authorities help to root out fly-by-night and vapourware institutions. Expecting a national government to suddenly accept a standard that anyone can change at any time without control mechanisms that they control, seems a little out of range - for now. I do think we will be able to create an open equivalent system that can operate in parallel. If it proves itself, it may then receive better consideration.

One thing I'm pretty sure of is that any major, world-wide system will need to encompass a diverse range of needs of very diverse partners. Insisting on sets of rules and setting strict requirements for governments and institutions to follow, is likely to stunt the sharing of OERs. We need to find ways to accept the differences in circumstances and needs of countries, institutions and individuals; trying to limit the ways or circumstances under which people share OERs may be seen as a power play ("play in my sandpit or I won't play with you") and treated with suspicion.

I've heard said that we run the risk of OER sites becoming large vanity-press websites, storing content that almost no one uses. The quality of materials on some of the wiki sites may contribute to the scepticism of OERs, and that much of these materials will remain in various stages of draft, never receiving the attention to quality and finish that proprietary, institution-generated content might receive. The use of OERs already created depends now on these being found useful by those who the authors thought would like to receive them. Have the potential users already started creating their own OERs from scratch?

The success of the OER movement will depend on reaching across the borders and divides rather than setting up more divides. We need "go betweens" or "bridgers" that help teachers and learners combine materials with all kinds of copyright licenses and websites that make materials in open formats accessible to the majority of computer users without the need to download and install different programmes and drivers than the ones they usually use. Trying to get the majority of computer users to change software before they can use OERs may be another barrier; people seldom have the connectivity,skills and authority to install and change software. We need to adapt to "where people are" rather than insisting on people "changing their ways".

Finally, the most repeated request I've heard amongst senior managers from small states has been to provide complete courses that can be customised rather than a range of resources that a teacher might find useful. This might be one of the most pointed guidelines to making OERs more useable.

Paul

Commonwealth of Learning

[36] http://www.col.org/vussc

22.2.4.12 12. Ken Udas - February 10th, 2008 at 12:09 pm

I would like to follow up on the some of the notions that "jsener" and Paul West (via Christine Geith) make about getting a good perspective of where we are right now and the ambitions of the Cape Town Open Education Declaration and various institutional models for Open Education. It seems to me that the idea of Open Education is important because it provides a goal, sort of a "magnetic north" for us to use as we refine practice.

Recognizing that open software (FLOSS) is not education and that open content (OER) is not education, are important ways to ensure that we continue to (more or less) travel north toward our goal. I would prefer to think that FLOSS and OER are enablers, necessary but not sufficient, for the incremental progress toward Open Education. David Wiley captures this in his recent posting tilted Content Is Infrastructure (Section 17.2), in which he posits that content, like physical infrastructure such as roads, liberates possibilities by reducing barriers to travelers.

I am wondering if our next steps have something to do with helping individuals and institutions use those roads (content) to meet their own needs, while not being too overly critical about whether or not they are traveling "true north," so long as it seems is if we are traveling with a purpose. It is important that we have trail blazers, but it is equally important that we have individuals and institutions willing to travel along those paths. So, who is using the content made available through the OCWC participants, Open Learn, WikiEducator, etc.? I see many trail blazers from which to learn, but it would be great to hear from those making good use of the paths that are have been created. I have a feeling that there is good practice and use.

22.2.4.13 13. Femina - February 12th, 2008 at 3:58 pm

We need to focus on the end goal – human development.

Open Source will help to fight against Microsoft domination, blogging will help against media moguls.

22.2.4.14 14. christine geith -February 13th, 2008 at 4:28 am

Ken, I like your notion of OER as "magnetic north," building on David's idea of OER as infrastructure. What matters is that we are traveling in the northerly direction, whatever route we take.

Since my post on the 1st, I've learned of even more OER-University proposals. It shows the growing number of people and organizations heading north.

Outside of formal organizations is where I hope there is even more OER action - where can we find those examples?

22.2.4.15 15. jsener - February 14th, 2008 at 11:50 pm

[Note: apologies if some of the links in this message are messed up – it's not clear to me how these textboxes are formatted, whether pure HTML or sthg. else]

So who's got the compass?

One answer to Chris's question "How can we get the word out and invite more thought-leaders and action-takers to participate?" is to define the key operational terms in her question — What is the word, and how can people participate?

So far, I've yet to find a coherent answer to these questions. The "magnetic north" metaphor is appealing, but my experience so far in trying to educate myself about this initiative is more like watching a lot of well-intentioned wandering, collectively speaking. When "human development" can be defined as broadly as fighting against "Microsoft domination" or "media moguls", or as narrowly as "free textbooks," where is the magnetic pole in this flurry of activity?

As part of the process of , I participated earlier this week in an online presentation about OER — see http://www.slideshare.net/cgreen/developing-a-culture-of-sharing-and-receiving-open-educational-resources[37]

[37] http://www.slideshare.net/cgreen/developing-a-culture-of-sharing-and-receiving-open-educational-resources

for the slide show. It was a good presentation, but much of it was focused on creating open textbooks to relieve the high cost of textbooks — naturally since it was largely a community college audience. Today Stephen Downes had a post on a site listing more than 100 free places to learn online[38] . OER must be a mighty large umbrella to accommodate these and many other similarly unrelated initiatives, and this is a long way from UNESCO's 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries from which the term OER is reportedly derived.

So, I suppose that one answer is that OER can be operationally defined however thought-leaders and action-takers want to define it. Hard to see how there's a "magnetic north" in this notion, however. Another answer is to provide clearer operational definitions that would help prospective thought-leaders figure out how to think about this initiative and help action-takers to take coherent action.

One good place to start would be to keep clear the distinction between formal education and informal/lifelong learning, as an earlier comment noted. If anything, the increasing availability of open content highlights the distinction between education and learning, rather than blurring it. Put simply, when content becomes freely available, what distinguishes learning from formal education? All the forms that make education "formal" — accreditation, learning support systems, instructors, quality control measures, etc.. In other words, most of the stuff that's missing from most of the OER content I've seen thus far.

In looking at some of the resources I found thus far, I'm feeling an eerie sense of deja vu: haven't there been openly available content resources before in print form? At the same time, it seems that OER collections are often unvetted for quality. For example, I clicked on the Wikieducator link and started exploring. I ended up looking at some science exercises created for elementary school biology students by students at Saint Michael's College. The exercises were interesting and well-structured in many ways, but they also indicated that these OERs were of variable and sometimes untested quality.

Finally, it would help if OERs included a 'chain of custody' of sorts, by which I mean a way to trace the resources back to their creators. For instance, I've tried to trace the Saint Michael's College OERs back to the source to see if I could learn more about them. The link on the Wikieducator site led back to the college web site, but the college's search engine turned up nothing on the resources themselves. There is a professor teaching a course with that in the title; perhaps I could contact him and find out whether or not there is a connection there. But the connection should be more transparent and traceable than that.

22.2.4.16 16. Ken Udas - February 19th, 2008 at 9:01 am

Once again, I am sorry for the delayed response. Jsener, I think that many of your observations and points are pretty accurate (and shared). The OER/FLOSS/FOSS/OSS/Open Education/etc. "community" does seem to function as a rather loosely related collective. One has suggested that OSS projects develop because an individual or organization has a need that can be met with the development of some software (they have an itch to scratch) and they decided to pursue development and/or distribution using an OSS licensing model, frequently for rather pragmatic reasons. When they make this decision, no matter the reason, they are committing to a certain level of access.

I think that the "magnetic north" might be similar for OER. What if we just suggest that for starters we are agreeing that more access is better than less access. So when we decide to create and or use OER we try to do it in such a way that it enhances access. If we keep this in mind we will consciously do things like using licensing that supports the widest opportunities for distribution, using file formats that do not require proprietary software clients to read and edit the files, store content in places that are readily searched and are open to all, etc. These examples point to a few realities that reduced access (licensing, economics, and physical access) – there are of course others.

As a side note, the existence of WikiEducator, OCWC, Connexions, OER Commons, EduCommons, etc. point to the fact that a lot of work is being done around access, and that events like the COSL sponsored OpenEd meeting point to a growing community of practitioners.

Access does not address all of the issues that jsener has raised, but it is a start. It at least allows us to think operationally about the many decisions that must be made. It helps us to slowly and incrementally

[38] http://blog.missiontolearn.com/2008/02/more-than-100-free-places-to-learn-online-and-counting/

move North. We might then say, not only should our OER be accessible, but they should also be Usable. We might then start asking ourselves why would folks want to use and reuse our OER? If we assume that they will actually be used for teaching and learning purposes, we might want to start making decisions that relate to "quality," ease of customization, etc. For many applications being able to track the work back to the original authors (and contributing authors) will enhance the "usefulness" for teachers that might have questions about the content that are not obvious.

If we use basic notions such as "access" and " usability" as our touchstones for OER we do not have to worry so much about if they are intended for formal or informal educational purposes, or if they are going to be used for relieving human suffering, home schooling, personal development, integration into a traditional university curriculum, etc. The point is that they are available, and right now, as it has been pointed out, there is a lot of content available. Could it be made more accessible or useful? Can we do anything to help teachers and learners use and modify OER in ways that make sense for them given their needs?

22.2.4.17 17. Ken Udas -February 23rd, 2008 at 11:20 am

This comment form "jsener" sort of slipped through the cracks and I think that it merits some thought.

> *I also disagree with the assertions that online learning in the U.S. "has not delivered on the promise of increased access" and has fared better for quality. There are now over three million online learners annually in U.S. higher education and probably over 12 million cumulatively since its inception. The majority of this has happened at community colleges, for which access is an integral part of their mission. How does this not represent an increase in access? While I think that online learning has finally succeeded in establishing a perception and reality of quality, IMO this still lags behind relative to its achievements in improving access. If online learning failed to deliver relative to some of its initial hype, the fault is with the hype.*

I happen to agree with this. I feel that Online learning in the U.S. has, on the aggregate, increased access to higher education, but it might have done so with differential impact on different learner communities. For example in the "golden age" of paper-based distance education, incarcerated learners were relatively well served through distance education. That is, many facilities provided enough access to paper based materials to allow an inmate to engage in a formal distance education program. Very few prisons allow Internet access to inmates, significantly reducing access to that learner population for this modality. This becomes an access issue when institutions move from traditional paper-based distance learning delivery methods to online.

I wonder too, what percentage of institutions with a history in traditional distance education (Penn State, UMUC, Open Polytechnic of NZ, Open University UK, UNISA, University of Wisconsin, etc.) have moved away from paper and only offer their programs online. I also wonder if tuition and fees have risen disproportionally throughout the transition, creating another access issue for some learner populations.

22.2.4.18 18. christine geith -February 24th, 2008 at 5:03 am

Ken and John, appreciate your thoughtful responses in this thread. Regarding access, while what you've noted about participation is true, take a look at what's in our paper (live at http://www.distanceandaccesstoeducation.org/contents/JALN_v12n1_Geith.pdf[39]) and I think you'll see why it's not clear that online has increased access to degrees - albeit that's just one definition of access.

Seems to me that online to this point is an incremental innovation to existing practice - and that's a good thing - but it's not the disruptive innovation to the system of higher education that it was once thought to be. It has clearly increased convenience, yet the vast majority of low-income students in the U.S. still do not achieve degrees and costs continue to rise. So, its impact does not yet appear to be big enough to put a dent in some of our big problems. I think that it can, and I'd watch the for-profits and adult-serving institutions for examples.

[39] http://www.distanceandaccesstoeducation.org/contents/JALN_v12n1_Geith.pdf

Regarding the notion of "true north" - what exactly are we talking about asks John. First, for background, I recommend these two papers:

Giving Knowledge for Free by the OECD http://213.253.134.43/oecd/pdfs/browseit/9607041E.PDF[40]

OLCOS Roadmap 2012 http://www.olcos.org/english/roadmap/[41]

My perspective is that "North" is decision making about intellectual property that is based on a notion of abundance, not scarcity. The world today has plenty of scarcity, but I'm talking about an abundance on the Internet of information as well as experts. Making even more abundance through sharing, and operating as though there were already abundance, is "North" in my mind.

What does this mean? For one, when creating intellectual property in the form of structured learning resources (i.e. educational resources) do not assume that their value is in making them scarce and then charging for access through publishers or through courses. In an era of abundance of resources and experts, it is likely that there is even more value in sharing them openly and benefiting in other ways, indirectly, from the act of sharing. Structuring and crafting information and resources for the purposes of teaching and learning is extremely valuable in the context in which they are used. It is the context that makes them valuable - it is the context that is scarce. Those same resources are also useful outside of their original context - for other purposes by other people in other contexts. Why not share the resources and contribute to the growing abundance? This notion has been described as the knowledge commons.

I think of OER as another layer of organization on the Internet - another layer that makes information more valuable through its structure. What will we build on top of this layer? What value-added services and contexts will emerge around the commons? What will emerge to enhance education? - Free textbooks? Free courses? Tutoring services? New ways to earn credit?

There are many elements of the commons notion that have not yet emerged that would seem to make it all work: good search tools, filters and recommender systems for one; new ways to vet quality for another; tracking systems (like the "chain of custody" John described) for another. No doubt, these are coming. Google and Creative Commons are working on a search engine, for example http://learn.creativecommons.org/[42] .

Also, for this OER knowledge commons to operate similar to OSS economically, we need corporate interests, such as publishers, to participate like IBM did in Linux. See this paper by Bruce Perens for background on the economic model of OSS http://perens.com/Articles/Economic.html[43]

Getting back to John's comments, OER are pieces and parts of an education experience. They are not - at least not yet - the complete experience and should not be compared to online learning with all of its context-rich social, cognitive and teacher components. Unfortunately, many proponents and practitioners involved in OER are unfamiliar with the research and best practices in online learning and distance education before that. This is an opportunity for online learning veterans to bring more people on board and to help shape the OER movement. Yet, we also need to keep in mind that OER is a further disaggregation of institution-based online learning where student admissions through to graduation are usually integrated functions. We need to look at the opportunities of OER from a different perspective.

22.2.4.19 19. Andrew Plimmer - February 25th, 2008 at 1:18 am

Open Education Resource is an extension of existing higher education activities which expands access to resources. Its innovative facility not only lowers costs and increases scalability by creating a new publishing mechanism for faculty while but also a global online open curriculum, with many variations, to be openly shared around the world.

http://www.suncoastinternet.com.au/[44]

22.2.4.20 20. christine geith -March 13th, 2008 at 12:37 pm

A good source of OER links is on Wikieducator at:

[40] http://213.253.134.43/oecd/pdfs/browseit/9607041E.PDF
[41] http://www.olcos.org/english/roadmap/
[42] http://learn.creativecommons.org/
[43] http://perens.com/Articles/Economic.html
[44] http://www.suncoastinternet.com.au/

http://www.wikieducator.org/Exemplary_Collection_of_Open_eLearning_Content_Repositories[45]

22.3 Summary[46]

"Can OER Really Impact Higher Education and Human Development?," the nineteenth installment of the Impact of Open Source Software Series, was posted on February 1, 2008, by Christine Geith. Christine currently serves as an assistant provost and executive director of Michigan State University's MSUglobal[47] , which is the university's entrepreneurial business unit that works with academic partners across the campus and worldwide to develop online institutes, programs, and services. She is currently leading discussion around OER at her home institution. Thanks Christine for a great posting!

In her posting Christine posed a number of questions about the purpose and potential impact of OER. She sets-up her posting by posing some questions, which she later follows with some additional questions and links to resources. The lead for the posting is:

> *Open Educational Resources (OER) are rapidly growing and taking shape. What might it mean for higher education? The movement holds promise for opening up access and improving the quality of higher education around the world. It could even create new types of universities.*

Christine then points to the promises of online learning in the 1990's, asking if we haven't heard this before (hype)? That something on the horizon – online learning in the 90s – OER currently - provide the promise of access and quality. She then asks if OER can live up to its promise – citing examples of models intended to leverage the existence and creation of quality OERs to enhance access. Finally, Christine asks, "What is the problem we're trying to solve?" and follows the question with examples of blending formal and informal learning experiences. She concludes with a call for creative solutions and models to leverage the potential for online learning and OER to reduce the education access gap, while also pointing to the potential of formal as well as informal learning

22.3.1 Comments

There were a number of comments that range across a fairly wide range of topics, which included:

- Educational models that separate materials development and instructional capacity leveraging OER.
- The roles of technology in open education.
- Prior learning, OER, and vocational competency standards.
- Can OER impact Higher Education?
- Can OER change the nature or structure of higher ed institutions in general?
- Can OER impact Human Development?
- Impact of localization, reuse, and re-release.
- General disappointment and confusion over the real impact and role of OER in educational programming and human development.
- Confusion of the nature and substance of a "community" of OER practitioners and users.
- Notions about general direction, descried as establishing base-line commitments that serve as a "magnetic north."

Thanks again to Christine for her interesting and insightful post and responses. I also want to extend a big thank you to Steve Foerster, "sehrmann," Leigh Blackall, "prawstho," "jsener," and "Femina" for making this a great exchange, and other folks who have been reading along. The schedule of guest authors for the next

[45] http://www.wikieducator.org/Exemplary_Collection_of_Open_eLearning_Content_Repositories
[46] This content is available online at <http://cnx.org/content/m19881/1.1/>.
[47] http://www.msuglobal.com/

5 moths is great. On March 1st, Amee Godwin of OER Commons[48] will be posting, which will be fantastic. The schedule for the series can be found on WikiEducator[49] .

Please feel free to continue this dialog!!

Comments on Summary

22.3.2 1. christine geith - February 28th, 2008 at 7:09 am

Ken, thanks for the opportunity to explore these issues on Terra Incognita. Everyone's comments have been thought-provoking and useful for evolving the issues even further. Thank you for facilitating an open, and active, community.

- Chris

22.3.3 2. Ken Udas - February 29th, 2008 at 1:19 pm

Chris, thank you for a great post!!

[48] http://www.oercommons.org/

[49] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 23

On Doing OER (Amee Godwin)

23.1 Introduction - Amee Godwin[1]

I want to welcome Amee Godwin and thank her for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Her post is scheduled to appear on March 1st, 2008 (eastern U.S.). Amee will be writing about OER as an active collaborative process aimed at enhancing teaching and learning. She will also provide a few examples of the collaborative process from what they are working on, in both the K-12 and higher education spaces.

Figure 23.1: Amee Godwin

Amee Godwin serves as Program Director, OER Commons[2] , Institute for the Study of Knowledge Management in Education[3] (ISKME). Amee Godwin has over a decade of experience in applied research and development of community applications. Her work focuses on connecting technology, education, and collaboration. At ISKME, she guides the development of content, interactivity, and partnerships for OER Commons, a teaching and learning network for open educational resources.

Previously a director of award-winning video documentaries and art director in the commercial film business, Amee earned a Masters in Professional Studies Degree in the Interactive Telecommunications Program at New York University, Tisch School of the Arts, and a BA in Media Studies and Art at the Center for Media Study, University of Buffalo. Formerly, at the Interval Research Corporation, she worked in the development of new media applications. While Program Director at the community-led Sanchez Art

[1] This content is available online at <http://cnx.org/content/m21189/1.1/>.
[2] http://www.oercommons.org/
[3] http://www.iskme.org/

Center, she created arts education programs and completed a Fellowship from the Arts Leadership for the Future awarded to emerging non-profit leaders and community builders.

Although I knew of Amee and her work for some time, I first met her at the Center for Open and Sustainable Learning[4] (COSL) OpenEd 2007[5] meeting at Utah State University. I am very much looking forward to Amee's posting, which will frame OER as a process, connecting dialog with examples of practice. I believe that her posting will help address some of the questions about the impact and direction of OER that were posed in our last posting, Can OER Really Impact Higher Education and Human Development? Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

23.2 Amee Godwin - On Doing OER[6]

NOTE: Author - Amee Godwin, On Doing OER. Originally submitted March 1st, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

23.2.1 Modeling "the promise" of Open Educational Resources

The Institute for the Study of Knowledge Management in Education (ISKME) has created an online network[7] that aggregates open educational resources (OER) within a social networking environment, for the purpose of stimulating engagement of diverse populations in accessing and using OER worldwide. OER are most often thought of simply as content—that is, teaching and learning materials that are freely available for downloading, sharing, and remixing.

However, the value of OER is best described not through their aggregation as static resources, but through their potential to engage a wide range of teachers, learners, practitioners, and other stakeholders in resource transformation, cross-pollination of ideas and expertise, and collaborative knowledge building.

Research about digital media has shown that the development, use, and adaptation of resources can serve as a catalyst for engaging diverse teachers, learners, and practitioners in sharing their expertise, building their knowledge, and otherwise providing leadership in their fields. This is similar to organizational research that has found that continual improvement and enhancement often emerges from knowledge sharing among practitioners. In other words, OER is an invitation to improve teaching and learning processes.

But what comprises "doing" OER? Does it take a new belief system? Are we doing it already? What examples are there to show off models for active engagement with OER?

The phrase, "the promise of OER," resurfaces often around the nascent movement for ready-to-modify learning materials. If OER is seen as merely rewritten curriculum, it's not surprising that the movement might produce a few yawns. "Doing OER" is meant to embrace much more than this, starting with an evolutionary mindset about learning content and the learning itself.

Searchable, web-based resources with clear conditions as to how it can be used represent a platform for collaborative "mutation" or remixing. They are meant to be integrated into ways we are already engaging in collaboration and knowledge building, and in the process, incrementally to be part of growing new ways of teaching and learning that are more participatory, community-based, and bottom up.

Those of us lucky enough to have a dependable broadband internet connection already IM, email, skype, poke, post pictures, edit wikis, blog, post in forums, share bookmarks, video conference, tag, rate, review, and recommend favorite things to both friends and strangers, as part of a digital lifestyle. The knowledge-building potential is enormous and growing due to repurposeable materials and the collaboration possibilities that surround them.

[4] http://cosl.usu.edu/
[5] http://cosl.usu.edu/events/opened2007/
[6] This content is available online at <http://cnx.org/content/m21186/1.1/>.
[7] http://www.oercommons.org/

The recent addition of the Library of Congress' historical image collections[8] to Flickr, which are appropriately tagged with the word "commons," is a red-hot example of "doing OER." The images are not formally licensed, but are shared under the terms "no known restrictions." It is this type of engagement opportunity—i.e., the encouragement of communal tagging—that OER is meant to achieve.

Another example of doing OER is the BioQUEST Curriculum Consortium's use of problem spaces[9] . In contrast to static collections of data or lessons, problem spaces are dynamic workspaces where teachers and students share their work. Rather than using a more traditional lab approach where the students—who in this case are college instructors or pre-service teachers—may be asked to follow highly structured procedures, problem spaces emphasize the development and exploration of student questions as they come to understand biological principles, analytical procedures, and the formulation of data-based inferences. By collecting and displaying the work of others, problem spaces contextualize scientific inquiry within a community of practice where meaning is negotiated and problems have a history across multiple researchers.

Publicly available datasets, inquiry-based models for learning, collaborative tools and environments for sharing—these are the building blocks for "doing OER." At ISKME we support ways for teachers to benefit from existing practices of online communities. This includes facilitating their ability to create and share "microcontent," or smaller pieces of information drawn from multiple platforms (e.g., wikis) that can be augmented, revised, and re-combined, and engaging them in the use of web-based tools, such as OER Commons[10] , which allow them to attach their own tags to online content, thus creating meaning from the bottom up as opposed to that which is predetermined by content experts.

One of the things common to doing OER is that of crossing boundaries of traditional roles. Stepping into new collaborative processes creates opportunities for participants to move beyond established roles—by, e.g., providing spaces where teachers and students and teachers and their colleagues can co-create content. But such opportunities may also pose risks to a teacher's professional status. What benefits are there for teachers to share their content online?

How can teachers work within the frame of institutional structures that do not yet support collaborative ways of working, and do not reward teachers for the time and resources spent? Especially for the K-12 arena, these questions have yet to find answers. Several hundred K-12 teachers using LeMill.net[11] are, in fact, creating and posting content for anyone to see and adapt; yet, teachers on the whole may need support in stepping into new roles such as that of OER author or online collaborators.

At ISKME, we have just begun a pilot project with 18 middle school science teachers in four countries to see how they find and adapt resources, use available tools, and collaborate with each other and with their students around issues related to climate change and ecology. Creative remixing of teaching and learning materials will likely find its place here, but we expect to see challenges in cross-cultural, multi-lingual online sharing. We're interested to understand how much support and facilitation the group might need, and whether OER materials can be produced with relative ease and with minimal difficulty and risk on the part of teachers.

Furthermore, ISKME has developed a set of OER case studies[12] by studying how a range of other OER projects form, change, and evaluate their own progress, and has created an OER How-To Manual that aims to offer practical assistance to anyone looking to start or evaluate their OER efforts. ISKME's case study work has revealed that a key element in "doing OER" has been to include face-to-face training, mentoring, and working with peers and experts. In one of the cases, Free High School Science Texts[13] , it was clear that high-quality resources don't just happen online on their own. In this grassroots project based in South Africa, a highly collaborative and participatory infrastructure was built over time to bring authors together both online and in person, and to organize their workflow, establish quality criteria, reward their input, and deploy their "finished" publications.

Through the OER Commons initiative, our educative role is to identify and construct models that support

[8] http://flickr.com/commons
[9] http://bioquest.org/bedrock/problem_spaces/
[10] http://www.oercommons.org/
[11] http://lemill.net/
[12] http://icommons.org/nodes/oer-case-study-project
[13] http://www.fhsst.org/

a mindset about evolutionary change through OER collaboration, knowing full well that simply distributing OER content alone won't dig us out from old models. New models for teaching and learning are a necessary part of the doing, especially in terms of facilitating problem-based inquiry and data sharing, mentoring and cycling through feedback with peers.

Perhaps through considering examples of OER in action, we might have a chance to reflect on the "promise of OER" and ask if we getting any closer to it through the way that we are doing it.

Further readings:

- B. Collis and J. Moonen, Flexible Learning in a Digital world: Experiences and Expectations (London: Kogan Page, 2001)
- S.E. Metros K. and Bennett, "Learning Objects in Higher Education," ECAR Research Bulletin 19, (Boulder, CO: 2002)
- L. Petrides and C. Jimes, "Open Educational Resources: Toward a New Educational Paradigm," iJournal Insight into Student Services 14 (Oct. 2006).
- Y. Benkler, Common Wisdom: Peer Production of Educational Materials[14] (Utah: Utah State University, 2005) (pdf)
- L. Petrides, Turning Data into Knowledge: What's Data Got to Do with It? (Phoenix: League for Innovation in the Community College, 2004)
- L. Petrides and T. Nodine, Anatomy of School System Improvement: Performance-Driven Practices in Urban School Districts[15] (San Francisco: New Schools Venture Fund, 2005).

23.2.2 Comments

23.2.2.1 1. Ken Udas - March 4th, 2008 at 5:56 am

Amee,

First, thank for this fantastic (interesting & thought provoking) posting. There are a lot of ways of approaching the topic of "doing OER," and posing the types of developmental questions that you have takes us beyond the topics of licensing and storage. Looking at the BioQUEST Curriculum Consortium's use of problem spaces that you cite in the posting, for example, I think points us down a path not unlike the use of participatory action research for the development of curriculum, which I think is pretty exciting.

I have been involved in various roles with a number of institutions, principally in higher/tertiary education, that do a lot of distance and online education. Most of those organizations had adopted pretty traditional curriculum and course design and development process. The processes have tended to group in two general areas:

1. Sometimes these processes were really traditional, faculty-centered processes that were augmented with assistance from a learning designer, perhaps a graphics artist, multimedia professional, etc.
2. Sometimes the processes are based on a "production model" intended to achieve some economies of scale through divisions of labor and use of other techniques for achieving efficiencies.

Although I do not have a handle on the actual amount, but if I were to guess at the volume of content that is created for distance and online education annually through formal processes, it would be quite significant. It seems that in this posting, "Doing OER implies a third model that connects:

- Design
- Development
- Delivery/Use/Distribution
- Assessment
- Redesign/Redevelopment (for reuse)

[14] http://www.benkler.org/Common_Wisdom.pdf
[15] http://iskme.org/what-we-do/publications/anatomy-of-schools/

in an environment where the whole process is educational and open to learners as well as faculty, designers, etc. This type of approach would obviously be quite powerful, particularly if the process included the introduction of new student generated content/artifacts.

So, is this the type of thing that is worth doing? (It seems to be a natural enough extension of what Amee is talking about.) If so, who is starting to do or fund this type of thing?

Looking forward to learning!!! Ken

23.2.2.2 2. Amee Godwin - March 7th, 2008 at 2:09 pm

Hi Ken,

Thanks so much for your comments and for drawing the connections between all points of the "production cycle" of OER. Yes, the production and modification of content in this context definitely constitutes learning. It is a non-traditional take on education and on resources, and is supported by inquiry-based and problem-based teaching and learning practices.

In the example of BioQUEST, I should also point you to the NSF-supported SCOPE project, http://www.bioquest.org/scope/index.php[16] , on which we are collaborating. The project's first upcoming workshop will bring this investigative approach to faculty as learner-participants in a face-to-face setting and from there we aim to support continuous production and engagement online with the resulting resources and data. This is meant to be an experience in doing contemporary science that the participating instructors and curriculum authors can then share with their students.

-Amee

23.2.2.3 3. Ken Udas - March 9th, 2008 at 5:37 am

Amee, These are really very exciting developments and I think point to the next step in making OER part of a meaningful educational experience. I think that a vast majority of what is out there right now is about creating and posting content. I assume that content availability is very important. In fact, some would, I think quite legitimacy, argue that it is absolutely critical infrastructure for all sorts of other things related to open education and provides the necessary material (open intellectual capital) for reuse and creativity.

Let's just assume for a minute that the volume of OER content, open access articles, FOSS, etc. is reasonable right now, would you have any advice for regular teachers to start doing "OER", perhaps if they are not at schools, colleges, or universities with much OER experience? How about advice for academic administrators? How might they act as catalysts?

Thanks! Ken

23.2.2.4 4. christine geith - March 9th, 2008 at 11:02 am

Amee, Thanks for sharing your thoughts, and some real examples, on OER collaboration. "Doing OER" is a useful phrase for the wide range of creative and collaborate activities you describe.

It's important that this message be shared more broadly and I'm glad to know that your institute, ISKME, is capturing case studies. As jsener noted in an earlier post, there is not enough out there on use and impact of OER.

Yet, I wonder how much of teacher, expert and practitioner collaboration is really due to OER. Like Ken asks, above, how important is it to have OER already out there to work from for "Doing OER."? How much of the "Doing" is using existing materials, and how much is creating fresh? Also, what is it about OER that is expanding the scope and/or depth of collaboration? How much of what we're seeing is due to having access to content versus having access to better tools for social collaboration?

Though I see it happening, it's hard to put my finger on why.

- Chris

[16] http://www.bioquest.org/scope/index.php

23.2.2.5 5. cynthiaj - March 21st, 2008 at 10:05 am

Thanks, Amee. I think that you highlight an important aspect of doing OER–that it requires a paradigm shift in some ways. So the question is, how do we best support teachers, students, and institutions overall in collaborating and stepping into new roles around OER and the potentially new ways of working it offers.

23.2.2.6 6. Amee Godwin - March 21st, 2008 at 2:04 pm

Christine, great questions and interesting point about where collaborating and OER might intersect.

Last week some of us heard John Seely Brown note in a talk at the Open Learning Interplay meeting at Carnegie Mellon that making MIT and other OCW materials public is having an 'unintended' effect of aligning previously unrelated courseware and faculty's course objectives generally, just through the power of making all the materials public.

For those of us exploring the mechanisms around continuous improvement and sharing, this effect is very much an 'intended' enhancement, that is, access and use of open, adaptable materials is meant to impact teaching strategies. It's hard to draw a line between "making fresh" and "building on existing", but the participatory activities used in making materials is a form of learning that then might stimulate collaboration in the form of feedback, reviews, discussions, new examples. The access, the tools, the social factors are making new blends in and around the content and practices used in teaching it.

Amee

23.2.2.7 7. Ken Udas - March 23rd, 2008 at 11:39 am

Hello,

The process that Amee is pointing to sounds very much like the "promise" of OER as a change agent or catalyst. From your experience (anybody), what are some of the qualities of OER that make it best suited for continuous improvement and sharing? That is, what do you think are some of the qualities or characteristics of open educational resources or courseware that makes some "better" and more likely to be easily used in the "Doing" process?

Cheers

23.2.2.8 8. Ken Udas -March 26th, 2008 at 6:32 am

Given the final thought in Amee's posting:

> *Perhaps through considering examples of OER in action, we might have a chance to reflect on the "promise of OER" and ask if we getting any closer to it through the way that we are doing it.*

I would like to get a sense for the answer...
Are we getting any closer to the "promise of OER" through the way that we are doing it?
and
How is "Doing OER" impacting education?

23.3 Summary - On Doing OER[17]

On "Doing OER," the 20th installment of the Impact of Open Source Software Series, was posted on March 1, 2008, by Amee Godwin. Amee serves as Program Director, OER Commons, Institute for the Study of Knowledge Management in Education (ISKME).

Amee's work focuses on connecting technology, education, and collaboration. At ISKME, she guides the development of content, interactivity, and partnerships for OER Commons[18] , a teaching and learning network for open educational resources. Thanks Amee for a great posting!

[17] This content is available online at <http://cnx.org/content/m21192/1.1/>.
[18] http://www.oercommons.org/

In her posting, Amee moves the dialog around OER from concentrating on the content to exploring the process of creating, recreating, and reusing OER. She describes doing OER as a catalyst for exchanging ideas and knowledge creation among diverse communities of teachers. Amee then sets the stage by asking the following questions:

- What comprises "doing" OER?
- Does it take a new belief system?
- Are we doing it already?
- What examples are there to show off models for active engagement with OER?

Amee highlights some of the issues around community spaces for tagging, sharing, and creation, pointing to developments and activities such as the Library of Congress' historical image collections in Flickr, the BioQUEST Curriculum Consortium's use of problem spaces, the wide spread use of LeMill.net by several hundred primary and secondary school teachers, and some of the great work that ISKME is doing through the OER Commons.

The focus of Amee's message is that the potential for OER as a catalyst for change is in the doing, and that "Doing OER" requires support, tools, and a cultural shift in many organizations to take advantage of the strengths of networked communities of practice.

One of the roles of the OER Commons is to explore new models for teaching and learning that is a generative process in which OER is done through active inquiry, sharing, mentoring, in a cycle that includes feedback and peer involvement.

Amee's posting provided us the opportunity to consider examples of OER in action and reflect on the "promise of OER," leaving us with the question, are we... "getting any closer to it through the way that we are doing it."

23.3.1 Comments

There were a number of questions and responses that flowed from the posting. Most of the dialog was around the importance of the process of creation of content as an element of learning. There was also comments and questions about the use and reuse of existing content and the importance of collaboration in knowledge creation.

Thanks again to Amee for her interesting and insightful post and responses. I also want to extend a big thank you to Christine Geith, and "cynthiaj" for adding to the post, and other folks who have been reading along. On April 1st (no foolin'), Stuart Sim of Moodlerooms [19] will be posting, which should be a very interesting topic relating to business models in open source software. The schedule for the series can be found on WikiEducator[20] .

[19] http://moodlerooms.com/

[20] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 24

The Business of Open Source (Stuart Sim)

24.1 Introduction - Stuart Sim[1]

I want to welcome Stuart Sim and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Although his post was scheduled to appear on April 1st, 2008 (eastern U.S.), Stuart has run into problems that have delayed the posting. We will delay the posting by about a week. Stuart will be sharing some of his experiences with open source software from the perspective of a system architect and his activities in the business of supporting and growing open source applications.

Figure 24.1: Stuart Sim

Stuart Sim serves as the Chief Technology Officers and Chief Architect of Moodlerooms[2] , which provides comprehensive technical support services to the Moodle[3] course management system open source software. Stuart has spent the past 15 years developing enterprise solutions around the world in the education and

[1] This content is available online at <http://cnx.org/content/m19872/1.1/>.
[2] http://www.moodlerooms.com/
[3] http://moodle.org/

financial sectors. His core expertise is in the design and delivery of large-scale implementations using combinations of classic and innovative development methodologies in distributed multi-disciplinary environments.

Prior to joining Moodlerooms, Stuart served as the Chief Architect of the Education Business Solutions group at Sun Microsystems. At Sun, he was involved with the development and promotion of open standards in education systems design to drive down the barrier of adoption of practical technical solutions using open source projects.

I met Stuart while I was working at the SUNY Learning Network and he was at Sun. Since then Stuart's work has started to addresses some of the traditional concerns at universities about deploying an open source learning management system, opening opportunities for schools of varying capacity. Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

24.2 The Business of Open Source[4]

NOTE: Author - Stuart Sim, "The Business of Open Source". Originally submitted April 11th, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

First off let me state the obvious and say that building a business that depends on open source is not an easy thing to do. If it was, there would a great deal more success stories out there.

Offering services around Intellectual Property (IP) you own, manage and control that no one else can replicate - or not easily any way, is a well understood model if not always executed in the best way. Grabbing hold of 'free' software and wrapping services in a completely transparent way means really understanding operational risk. Given that the same IP is available for anyone to do exactly the same thing and compete in your marketplace means your always fighting to innovate faster than the next guy and that can only be a good thing.

Personally, I love the idea of forcing my competitors to innovate.

The goal of course is to build a value proposition to the market that provides the highest quality of service at the lowest cost. The transparent nature of open source projects allow you to develop your own risk model where you can identify exposure and price your services competitively.

Visibility into the underlying source code is the first step. Those organizations that participate in the project community gain a much greater advantage than those listening from the outside. By contributing to the development of the code and gathering feedback from both the software users and fellow developers, a more refined risk model can be developed with lower risk premiums and therefore a greater competitive pricing model can be offered to the market.

The more obvious benefits that are more widely presented include reduced internal costs in two significant areas: research and development and support.

There are companies that invest nothing in R&D and, generally speaking, history has not been kind to them. This is especially true of software companies where very tight competition forces constant innovation. In a closed model that innovation has to be paid for by the customer and is often non-transparent so the true value is hard to assess.

The other major cost in a closed environment is the end user support where the model has to be developed and maintained internally and paid for entirely by the customer. Without the ability to share any proprietary material, the market is forced to accept whatever inefficient support model the supplier can offer.

Thankfully, we're rapidly moving from the old days of having two extreme options. The first option is working in a world with locked down commercial licenses and no access to source code, while the second option on the other side was having all the code to play with and no support number to call for help or guidance.

Many companies sell software solutions under a commercial license where their customers get access to the source code for analyzing performance issues using their own profiling tools. For any organization that has their own technology team capable of compiling the application from source and inserting monitoring

[4]This content is available online at <http://cnx.org/content/m19880/1.4/>.

hooks, this can be a nice compromise where infrastructure risks can be managed internally but with the safety of external support should things go wrong.

It comes down to decomposition and transparency. The winners will be the ones that understand the market will reward companies offering choice of platform, services, support and leadership - none of which are dependent on each other.

Again, I love forcing people to innovate through disruption. If the game is not working for you then simply change the rules of the game.

24.2.1 Comments

24.2.1.1 1. Ken Udas -April 11th, 2008 at 1:18 pm

Stuart, First, thank you very much for this direct posting on such a relevant topic. It provides a lot of hooks to talk about. I have two questions to start out with:

You are a leader at MoodleRooms, can you tell me a little about the MoodleRooms model, which it value add is, and what types or organizations can benefit from the business/service model that you are using?

and

Are there qualities to Moodle that make it a good open source application to support your model? That is, what are the qualities of OSS applications that make then better for the "Business of Open Source?"

We can start here, and expand out a bit more later. Ken

24.2.1.2 2. Stuart Sim - April 17th, 2008 at 8:19 pm

Hi Ken, The Moodlerooms model is simply to offer the best hosted platform for Moodle services on the planet. Moodle already has a strong functional and pedagogic focus and our mission is to complement that success with the introduction of world class enterprise qualities.

We aim to disrupt the market by sharing the design of the hosting platform with our partners and competitors and therefore forcing better service from all the service providers.

Cheers, Stuart

24.2.1.3 3. Stuart Sim - April 18th, 2008 at 12:27 pm

The openness and active collaboration of the Moodle community highlight the best properties of an open source project needed for anyone to develop competitive services in support of the code.

The community is also very welcoming of experiences shared by commercial service providers from the field and supports healthy discussion on the issues related to operating and supporting the code base.

24.2.1.4 4. Ken Udas - April 22nd, 2008 at 5:39 pm

Stuart, I see what you are doing from the Moodlerooms perspective, but what do you think that larger impact services like Moodlerooms is having on higher education and the use or acceptance of open source applications in the LMS space?

Thanks, Ken

24.2.1.5 5. Steve Foerster - April 23rd, 2008 at 11:19 am

Hi Stuart, thanks for your interesting post. How do you compare the services that you and other open source providers offer with those from closed source competitors? For example, my university uses Blackboard, which offers integration with student records systems like Datatel.

24.2.1.6 6. Kim Tucker - May 20th, 2008 at 7:30 am

In Africa and other parts of the "developing" world some have recognised the importance of free/libre and open source software in terms of cost and (more importantly) empowerment - i.e. rather than being passive consumers of highly restrictive software, being able to adapt and develop the software further and offer services to make a living (e.g. distribution, training, support, configuration and customisation, software development, etc.).

There is a project starting up which may be of interest to readers, and we invite participation: http://wikieducator.org/FLOSSBusiness[5]

I have started by including a link to this blog posting on one of the Curriculum pages.

Thanks! :-)

24.3 Summary[6]

"The Business of Open Source," the twenty first installment of the Impact of Open Source Software Series, was posted on April 11, 2008, by Stuart Sim. Stuart serves as the Chief Technology Officers and Chief Architect of Moodlerooms[7] , which provides comprehensive technical support services to the Moodle course management system open source software. Thanks, Stuart, for a great posting!

In his posting, Stuart raises some of the challenges of building a business model for wrapping services around intellectual property (IP) that is open. He points out that providing services for IP that you own provides an element of control that you do not have while supporting OSS. Your success with open IP is based entirely on the value proposition of your services.

Stuart clearly communicates that there are significant benefits to providing services for OSS as well as challenges. First, working in the OSS space provides a strong impetus to innovate and manage risk. For example, code visibility provides an advantage to commercial service providers who become part of the development community, spend time understanding the code and community, and contribute to the code. It is through this type of involvement that a service provider can better refine its risk model, reduce its risk premiums, and pass them on to customers.

The "punch line" of Stuart's posting is that transparency leads to efficiency, efficiency to lower cost, and lower cost leads to more and happier customers/users. While code transparency provides opportunities for efficiencies, the inefficiencies associated with proprietary (closed) IP come, at least in part, from the non-competitive nature of how R&D is conducted and services are provided in closed software environments. The development of comprehensive and commercial service providers such as Moodlerooms, has eliminated, for some OSS products, the problem for end users of having great low cost software, but no options for external software support. The economics of open code allows smart service organizations to provide low-cost high-value services, and smart software users to take advantage of both low or non-existent license fees, and low cost services.

24.3.1 Comments

There were a few more general comments about model and what factors associated with specific OSS products/communities allow for a good commercial service support model. The conversation never really gained much traction, which is unfortunate. I think that the topic is incredibly important for OSS communities as well as organizations that adopt OSS into their core business systems, and customer facing parts of their value chain. So, in a while, I am going to take another stab at this topic and see if we can get a little more teased out of it. For now, I think that Stuart has provided some nice conceptual points to hang on to, and some foundation to build from, which are very important for a dialog that is still under exploration

[5] http://wikieducator.org/FLOSSBusiness

[6] This content is available online at <http://cnx.org/content/m19884/1.1/>.

[7] http://www.moodlerooms.com/

and development. Any suggestions for authors or approaches to expand on this topic would be greatly appreciated!

Thanks again to Stuart for his interesting and insightful post and responses. I also want to extend a big thank you to Steve Foerster for adding to the post, and other folks who have been reading along. On May 1st, Joel Thierstein, who serves as the Associate Provost for Innovative Scholarly Communication at Rice University and Executive Director of Connexions[8] will be posting on "The Role Of University Faculty In The OER World." The schedule for the series can be found on WikiEducator[9] .

[8] http://cnx.org/
[9] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 25

The Role of University Faculty in the OER World (Joel Thierstein)

25.1 Introduction - Joel Thierstein[1]

I want to welcome Joel Thierstein and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Joel will be sharing some of his experiences and writing on the topic of "The Role Of University Faculty In The OER World," which will provide the opportunity to open a conversation on the critical role of faculty in the ecosystem that supports the creation, distribution, use, and reuse of OER.

Figure 25.1: Dr. Joel Thierstein

Dr. Joel Thierstein serves as the Associate Provost for Innovative Scholarly Communication at Rice University and Executive Director of Connexions[2] . Prior to coming to Rice, Joel served as an Associate Professor and Director of New Media Communications at Oregon State University. He also served as a professor at Baylor University, Purdue University Calumet, and Southern Illinois University at Edwardsville. Dr. Thierstein has also served as a visiting professor of Communications Law at Syracuse University.

Writing extensively in telecommunications, Joel's books include Birds In Flight: Satellites In The New Millennium, 3rd ed. and Religion, Law and Freedom: A Global Perspective. In addition, to Joel's obvious

[1] This content is available online at <http://cnx.org/content/m19868/1.3/>.
[2] http://cnx.org/

commitment to open and sustainable education, he also has served as a Board member of Fossil Rim Wildlife Center since 2000 and Board Chair since 2003, and has worked extensively with the Conservation Centers for Species Survival.

Although I was aware of Joel's work through Connexions, I did not have the opportunity to meet him until a meeting that Wayne Mackintosh (Section 5.2) called in Vancouver about a year ago, during which we discussed the use of wikis to support development, management, and presentation of educational content. Incidentally I also first met Christine Geith (Section 22.2) and Leigh Blackall (Section 21.2) at this meeting, who have also contributed to this our Series. Unfortunately at the time, I did not have the opportunity to really speak with Joel during the meeting, so here is an opportunity for all of us to take advantage of sharing ideas about the critical topic that Joel will be outline for us. In any event, please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

25.2 The Role of University Faculty in the OER World [3]

NOTE: Author - Joel Thierstein, "The Role of University Faculty in the OER World". Originally submitted May 1st, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

We are at the beginning of a remarkable period in human history. We are entering a web 2.0 world - a world where networked communities inform decisions on both the individual and societal level. These networked communities involve a significant amount of discussion. This posting is made in that spirit. The purpose is not to provide answers but to raise questions. And thus, each paragraph is a series of questions. I have opened each paragraph with a framing question. The questions that follow are meant to further expose the underlying issues. Again, the purpose is to inspire discussion.

25.2.1 Background

What is the role of university faculty in society?

The traditional role of university faculty has been to advance the knowledge bases within their respective disciplines. Essentially, a faculty member's responsibility to the academy is to think. In the United States and much of the western world, university faculty are given lifetime appointments (tenure), so they can advance the knowledge base in society without fear of reprisal for non-traditional or controversial ideas. Tenure also allows faculty to think generationally rather than short term. Finally, tenure also allows faculty to develop ideas based on pure thought rather than for commercial gain.

25.2.2 Discussion

What is the relationship between university faculty and intellectual property rights?

If the role of faculty is to produce knowledge, do faculty have a right to the protection of their intellectual property? Does that intellectual property belong to the university or government agency or corporation who supports the faculty member's position? How is this relationship different in different parts of the world?

In what ways does OER impact the relationship between university faculty and their intellectual property rights? Because of its open nature, does the OER community demand that the university faculty member give up their intellectual property and place their creations into the open space? If not, does OER demand that the university faculty member give up part of their intellectual property rights? If so, which part? The paragraphs below explore some of the options.

25.2.3 Attribution

Should the work of a faculty member be attributed to the faculty member?

[3] This content is available online at <http://cnx.org/content/m19873/1.3/>.

What role does society play in the development of the knowledge-base? If we are truly moving into a web 2.0 world where society contributes to the knowledge-base on a mass scale, how much attribution is required for any one individual? By the same token, do users have the right to know who created or contributed to the body of work in order to vet or filter the information? If the goal is to advance the knowledge-base as quickly as possible, isn't it necessary to have attribution in order to separate the quality material from that of lesser relevance? If filters like attribution are applied, doesn't that cause the reinforcement of the status quo and cause the degradation of innovative ways of think or looking at a problem from a completely different perspective? Because in many parts of the world it is expected that faculty members will go out and work on projects outside the university in order to pay their salaries, is it more or less important that attribution be a part of the retained right when work is put into the OER space?

25.2.4 Non-commercial

Should others be allowed to make a profit from the work of university faculty?

If a faculty member is paid to think, should a faculty member be allowed to make additional income from work that they are already paid to do? If so, doesn't that give the faculty member an unfair market advantage over the non-academic in the field who does not have the benefit of the safety net of tenure and university? If people are not allowed to reap the rewards of their efforts why would the best and smartest of the human race become university faculty? Can we truly count on the fact that there are enough altruists in the world who are willing to work below market wage? Is the lifetime contract of tenure a fair exchange for the income that could be earned in the commercial sector? If it is true that most faculty could not make more money in the commercial sector, should a distinction be made among those who can and cannot make a great wage outside the academy?

Should others be allowed to make a profit from the work of university faculty? If the commercial sector is not allowed to commoditize the work – or in other terms, turn the theory into application –, are we as society deprived of the benefits of the work of university faculty? If the commercial sector is prevented from participating in this portion of the knowledge sector, is society potentially deprived of the brainpower of a significantly large portion of the population who are, in many ways, contributing to the advancement of the knowledge base of society? Because in many parts of the world it is expected that faculty members will go out and work on projects outside the university in order to pay their salaries, is it more or less important that the work be made non-commercial in the OER space?

25.2.5 Non-derivative

Should derivative works be allowed on the work of university faculty?

Is the work of university faculty different in some way as to justify protection from others preparing derivative works? If yes, isn't it taking this arguably more well thought out knowledge out of the web 2.0 process where the power of the network of communities can add to an already strong base? If we allow derivative works on the work of university faculty will those creating derivative work leverage the name of the faculty to advance their own ideology in ways unintended by the faculty member who initially created the work thus damaging the reputation of the faculty member who originally entered the content? Does this deter those with good reputations from putting their ideas into the marketplace for fear of having them twisted into something unintended? Does this then have a chilling effect on the creation of something truly innovative?

I look forward to your responses.

25.2.6 Comments

25.2.6.1 1. richardwyles - May 1st, 2008 at 5:07 pm

Great framework for some serious discussion. I offer my perspectives but not from a faculty perspective. I work with OERs and FOSS but no longer from within an education institution. These comments are

perspectives to further encourage debate, not attempts at answers.

When leading a relatively small but very informing OER initiative (http://oer.repository.ac.nz[4]) I came to the view, in the New Zealand context at least, that it is a very difficult proposition in a micro-economic sense but enormously positive at a macro-economic level.

If there were a demand at a macro-economic level that university faculty members give up their intellectual property and place their creations into the open space, then which parts? The protection of some intellectual property rights spawns some great commercial success - e.g. the Google story at Stanford foe example, many universities operate incubator environments and would argue that commercial drivers demand protection of IP or the research would have no purpose. But what about educational materials defined purely as that used for teaching purposes - with this definition then I am of the view that at a macro-economic level education worldwide will be advanced tremendously is ALL teaching materials were open.

Surely restricting the dissemination of instructional materials is counter to the role of faculty to produce knowledge? A university's funding tends to be via government, endowments, grants and tuition so an OER framework for educational materials would not fundamentally alter the university model. Like open source service companies, educational publishing houses could evolve to providing value added services but not restrict re-use and recontextualisation. Some business models would collapse but others emerge. And if educational publishing houses were to suffer lost profits, does that simply reflect a changed value chain?

While the Creative Commons framework provides a simple way to select Attribution or not, I think it becomes inherently difficult with derivative works depending on the extent of derivation. It becomes almost self-governing due to the perceptions of quality that Joel describes. As an example I will attribute when it adds strength or validation to the writing or when it is straight copy - but if it is a truly derivative work does the original author really want attribution in all cases - their words can easily be placed out of context and thereby offer different meaning - Joel's point about reputation. The CC attribution clause often has something along the lines of "but not in any way that suggests that they endorse you or your use of the work." I would also add that an OER that does not allow derivative works is not an OER, it's closed but with zero cost presumably. Doesn't the academic referencing framework, endnotes etc. adequately deal with attribution already without OERs having to define a new regime?

In my view, Non-commercial licensing should have its meaning clarified, and I see parallels here with say a GNU GPL vs BSD open source licensing decision. There remain very good commercial possibilities with GNU GPL licensed software but adding some further code, shrink-wrapping it and selling that software as my own is not one of them. Similarly, with OERs, a "non-commercial" license (need a new name for it) should allow for payment to be made for creating derivative works, added value services (e.g. publishing costs etc.) but not the ability to close off your derivative. To do otherwise, or to keep the status quo, is to restrict the OERs from promulgating ot from faculty - it just gets shared within the domain of the education system and this is an economic/knowledge loss to society. At the moment it is too confusing. Does non-commercial mean I can't take an OER and convert it to a corporate training resource? If so, hence the economic loss and why should the education sector be able to restrict that? Does non-commercial mean I can't charge course fees for instruction, & also give the resources freely? Many would say, no, you can charge course fees. An obvious loop-hope for commercial gain. Does non-commercial mean my company (www.flexible.co.nz) can't charge a client to alter an OER so its customised and useful to another faculty? If so, you see the rediculous constraints the current non-commercial licensing delivers. This area needs re-work asap as it is holding back the growth of OERs for the good of everyone. A GNU-GPL like license is the best way forward to protect against corporate scavenging while protecting the freedoms of the original intent of an OER.

Now back to chargeable work, no tenure for me ;-(

regards, Richard Wyles

25.2.6.2 2. vardi - May 4th, 2008 at 9:54 am

Regarding the basic question of "If the role of faculty is to produce knowledge, do faculty have a right to the protection of their intellectual property?", I find it naive. The real question is who owns the copyright, the

[4] http://oer.repository.ac.nz/

university or the faculty? Since faculty work for hire, one could argue that the university should own the copy right. There are arguments why faculty should own the copyright.

When it comes to other forms of IP, such as patents and software copyright, most US universities have asserted ownership of those.

IMHO, this is what the argument should focus on. The "role-based argument" make no sense to me.

Moshe Vardi

25.2.6.3 3. Ken Udas - May 5th, 2008 at 4:17 am

Moshe & Joel,

Although I do find "sense" in the role based question (role of faculty in society) that Joel poses, but I also think that there is something missing that Moshe touches on and it relates to the following question:

What is the academy's role in society?

What are some of the substantive contours to those relationships as they relate to IP? I think that these questions point to the relationships between the academy and faculty and the creation of IP and how IP is treated.

The academy's role might take a disproportionably large place in my thinking right now because many of the Open Courseware (OCW) initiatives have been institutional. In addition, it seems to me, at least around Courseware, that the nature of concerns relating to Open Courseware is different for individual faculty members and for academic administrators.

To Moshe's point, at Penn State there is a distinction made between "Commissioned" and "Non-Commissioned" work. Here is some of the language:

> *When the University initiates the development of courseware as part of a University-employed author's normal duties or as a special project for which extra compensation is provided, it will be considered a commissioned work and the University will own the copyright...*
>
> *... In some cases, University personnel may initiate the development of courseware independent of a specific commission by the University. The University makes no claim to copyright ownership for noncommissioned courseware initiated and completed by University-employed authors, but, for works within the scope of the author's University employment, will claim the royalty-free nonexclusive right to use such courseware in University programs.*

Ken

25.2.6.4 4. ahrashb - May 5th, 2008 at 12:52 pm

Thanks for sparking this conversation, Joel. There are too many questions posed to weigh in succinctly in this format, but I think that Richard's responses offer a great place to start.

First, there is no question that the NC term is problematic in the education space. The issue really boils down to one of intent... If the intent of the creator is to profit (monetarily) from the works, then the NC term is perfectly reasonable. Otherwise, it generally doesn't make sense. The problem is that most people apply the license due to a sense of moral placement; i.e., if I am not intending to make any money, why should I allow anyone else to do so? I think that this position is the inevitable outcome of many, many years of societal positioning regarding the "noble" status of those in the teaching profession. To the extent that being a university faculty member is a sacrifice (a tenuous position, in my view), then it makes sense that faculty would feel the need to prevent their work from being used profitably (in all senses of the word) by anyone else.

Note that there are currently other very good reasons for the NC term, reflective of this particular moment in time. Most of the existing educational material on the planet is not openly licensed, and re-licensing such materials more openly requires negotiation with substantial quantities of third-party materials in most educational resources. The OU (UK) has shown quite clearly that third-party rights-holders are far more

likely to grant permission to "open up" their materials if the NC term is applied. So, in the interest of expediency, the NC term can buy you quite a lot. There are other situations that are comparable.

Note also that I think the SA term (such as in the GNU GPL) is just as problematic as the NC term, in that it more a reflection of a desire to control user behavior rather than a mechanism for endowing creative works with useful properties. If a digital work is openly licensed, there is no way for that original work to be co-opted by someone else. The fact that it may be derived in interesting ways, and then relicensed to protect that investment, does not change the access to and permissions of the original. Besides, thus far, there is little evidence that works licensed CC BY (as opposed to CC BY-SA) are being co-opted in this manner. On the other hand, we know that CC BY-SA works are not interoperable with non-SA works, so there are significant opportunities for interesting educational mash-ups which cannot be shared, unless the resulting works all become SA, which users are not always at liberty to decide.

That being said, there are some places (e.g., wikis) where the SA dictate seems to work well. And if the world resolves itself to have two silos of open content (SA and non-SA), as opposed to our current situation, then we'll be in great shape, so at ccLearn we simply encourage people to strongly consider one of those two licensing options as being more appropriate than anything else.

I think the question of roles and policies for university IP is really interesting, and it will be quite some time before such things get sorted out, if ever. Here again, the lack of strict interpretation of the "attribution" requirement works in our favor, I think. Professional norms of practice are likely to suffice in most cases. It is my hope that CC licensing will re-establish some sanity in the whole debate about who owns the IP. Ideas cannot be copyrighted anyway, so to the extent that the IP fight is about controlling ideas, it's totally inappropriate. If an idea has a possible application, then the faculty member and the university should assess the extent to which patents and such make good business sense. In the vast majority of the cases, the answer will be no, since universities are not really designed (and hopefully will not be designed) to execute projects in a business environment. If a faculty member feels that his/her ideas have great potential for development outside of the university setting, then what's stopping them? As long as the ideas, and hopefully their expression, are openly disseminated, then no one can prevent them (or anyone else) from trying to capitalize on those developments. Too much work is suffering from lack of access and hoarding; it would be nice to change this situation, and perhaps open licenses can be part of the solution.

Anyway, happy to see some debate and thoughts here. Hope to see more of the same.

-Ahrash Bissell

25.2.6.5 5. Patrick Masson - May 13th, 2008 at 4:06 pm

After reading the posts to Terra Incognita I am most often left with little to say, other than, "yes, that's it exactly, spot on, I couldn't agree more." The only reason to post is to affirm the author's views or ask for an explanation of a new concept, term, technology or technique. Again I find myself in this position, but as Joel has taken the time to construct a framework for discussion, I'll play.

Joel asks, "If the role of faculty is to produce knowledge, do faculty have a right to the protection of their intellectual property?"

If we protect what is valuable, by protecting IP I must conclude it is the IP (some specific bit of knowledge or innovative way of conveying it) that is most valuable. But perhaps it is the engine that produces the IP which is really of value: would you rather have a golden egg or the goose that produced it? If then, rather than protecting IP (the golden egg) we protect the faculty (goose) wouldn't we then secure the real asset to the university, education and the development of knowledge? Perhaps this yet another reason to add to Joel's reasons for tenure (although from the university's perspective): a long term contract (tenure) ensures a valuable faculty member, who produces good work, stays with the institution.

Why has IP been seen valuable historically? Perhaps because the materials produced (a course, text, graphic, etc.) resulted in real costs, and those costs could only be recouped through selling access to those materials? Salaries for not only the faculty but the support staff within the department, research, publication and physical infrastructure costs all added up. The result is that a multimedia web site with dynamic content cost more than a xeroxed reader, thus sold for more, thus needed greater protection. Or, perhaps the hours of time invested in extensive research and development of a new teaching method proved more successful in

courses and thus needed protection. Either way the production costs required a return and the best way to get that was to charge for access.

Today, however, I wonder if the traditional "production costs" associated with creating IP have been reduced or even eliminated? Publication and distribution costs are a couple of examples that come to mind quickly. I can publish and distribute anything online for zero dollars (pmasson.wordpress.com[5]) Collaboration also comes to mind. I can point to a wiki (https://confluence.delhi.edu/[6]) and invite all my collaborators, editors, reviewers, etc. to participate without travel, typing, mailing, etc.

So what is left in the IP production chain that is not easily acquired? I would suggest it's the faculty, the intellect, who can actually produce the knowledge and/or materials. Just like paying for an application seems foolish to me when I know an open source version will soon become available, paying for content seems odd, when I know someone will soon post it to wikipedia (ok, that's a bit simplistic but I think it makes the point).

When educational content was difficult to come by, access to it was a premium to be paid for, now with content so freely available, constructible and accessible I need someone to facilitate my education.

Coincidently Educause just published an article that those reading this thread might find of interest: "Open Source Software in Education" (http://connect.educause.edu/Library/EDUCAUSE+Quarterly/OpenSourceSoftwareinEduca/46592[7]) It draws some interesting parallels between openness in both software and content development.

25.3 Summary[8]

"The Role of University Faculty in the OER World," the 22nd installment of the Impact of Open Source Software Series, was posted on May 1, 2008, by Joel Thierstein. Joel serves as the Associate Provost for Innovative Scholarly Communication at Rice University and Executive Director of Connexions[9] . Thanks Joel for a great posting!

In his posting, Joel raises a number of intriguing and interrelated questions that strike at the nature of the role of faculty in society and then again at the nature of the intellectual products of faculty. He then asks about how Open Educational Resources impact the relationship between faculty and intellectual property rights relative to society's legitimate access expectations to the intellectual assets of faculty. Underlying the connections that he makes, is the understanding that we live in a dynamically networked world (Web 2.0) that enables and relies on the exchange of information and knowledge. At the highest level, Joel shapes his posting with the following questions:

- What is the role of university faculty in society?
- What is the relationship between university faculty and intellectual property rights?
- Should the work of a faculty member be attributed to the faculty member?
- Should others be allowed to make a profit from the work of university faculty?
- Should derivative works be allowed on the work of university faculty?

He then nests other questions within each topic area. I do not want to give the storyline away, but let me mention that the purpose of tenure is an important feature and that the intellectual property issues associated with attribution, commercialization, and control over derivative works strikes squarely at access and the economics of knowledge formation framed as a ecosystem.

25.3.1 Comments

There were some incredibly insightful and interesting comments made to Joel's posting. Like the original posting, the comments were provocative and pointed to further questions. In my opinion, Joel's posting and

[5] http://pmasson.wordpress.com/
[6] https://confluence.delhi.edu/
[7] http://connect.educause.edu/Library/EDUCAUSE+Quarterly/OpenSourceSoftwareinEduca/46592
[8] This content is available online at <http://cnx.org/content/m19885/1.1/>.
[9] http://cnx.org/

the subsequent comments could constitute a framework for discussing and thinking about the connections between knowledge needs and knowledge creation and the role of the professorate within the university, pointing to some of the catalysts and inhibitors to OER and open education.

Thanks, again, to Joel for his interesting and insightful post and responses. I also want to extend a big thank you to Richard Wyles, Moshe Vardi, Ahrash Bissell, and Pat Masson for adding to the post, and other folks who have been reading along. On June 1st, Derek Keats will be making a post to the Series. Derek serves as the executive director of information and communication services at the University of the Western Cape and the prime mover behind KEWL.NextGen[10] . The schedule for the series can be found on WikiEducator.[11]

[10] http://kngforge.uwc.ac.za/
[11] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 26

Evolution to Education 3.0 (Derek Keats)

26.1 Introduction - Derek Keats[1]

I want to welcome Derek Keats and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series. Derek will be sharing some of his thoughts about how the products and processes of Digital Freedom, such as personal learning environments, recognition of learning achieved, and collaborative cross-institutional virtual classrooms, have the potential to create new opportunities for education.

Figure 26.1: Derek Keats

Derek is a marine biologist with strong interests in using technology to improve teaching-and-learning, to enable higher education to create Education 3.0, and to promote sustainable development. In addition to starting and managing a number of significant contributions to the study and improved understanding of marine plants and the application of technology in marine biology, Derek served as a director of the Cape Information Technology Initiative, a non-profit organization (NGO) focused on developing the ICT cluster and incubating new Information Communication Technology (ICT) businesses in the Western Cape. In late 2001, he was fully seduced by ICT, describing himself as a closet geek who came out of the closet.

[1] This content is available online at <http://cnx.org/content/m19867/1.1/>.

Derek's research interests include e-Collaboration and lessons for international collaboration from Free Software (open source) and related initiatives; next-generation e-learning systems and Education 3.0; Free and Open Source Software and Free/Open content in higher education. He is passionate about the potential of ICT-based collaboration to unify expertise within Africa and stimulate development, establishing the African Virtual Open Initiatives and Resources project, along with a number of like-minded colleagues around Africa, for this purpose. He has developed a number of initiatives in the fields of educational and environmental informatics, Free Software, Free and Open Resources of Education (FORE, often called OER) and has published around 80 research papers in biology and in the application of technology.

I am very excited about having Derek contribute to the Impact series and look forward to some active participation and development of dialog. Derek's post is scheduled for June 1, 2008. Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

26.2 Evolution to Education 3.0 [2]

26.2.1 The role of Free and Open Source Software and Free and Open Resources for Education (Open Educational Resources)

NOTE: Author - Derek Keats, Evolution to Education 3.0 . Originally submitted June 1st, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

Higher education institutions exist as a result of the need to aggregate resources that are scarce (professors, books, journals, laboratories). When I entered university in 1972, I had to leave my home in rural Newfoundland, Canada to go to the city 300km away because of this physical aggregation. While new opportunities exist today that did not exist then, they have mostly just changed movement, while leaving most of the fundamental processes intact.

The emergence of widespread technical infrastructure (the Internet), coupled with an abundance of Free Software and Free Educational Resources ("Open Educational Resources") has reduced some of this scarcity, and made other models of education possible. You can now use Free Software to do almost anything, so much so that it is now nearly four years since I have used an operating system or desktop application that was not Free Software.

New approaches that build on both the products and processes of Digital Freedom are changing the way we produce and share content and other cultural products. Everything I produce, I make available under a Creative Commons Attribution-ShareAlike license (including this posting), and there are many who do the same. The MIT Open Courseware initiative, and the movement that it has spawned is but one of many systems producing the content equivalent of Free Software (although some of the licenses used are anything but Free – particularly when it comes to disallowing the receipt of benefit from commercial contributers and benefit from contributers who may wish to allow that benefit themselves). Instead of asking textbook publishers to aggregate our scarce content, we are making it available under different models of production that do not require the aggregation of scarcity but instead distribute abundance. Content useful for learning is thus becoming more and more abundant, and available.

Of course, it is not all good. There is a deeply disturbing and absurd movement to try to accredit the so-called "open educational resources," with UNESCO seeming to wish to do this for reasons that are of dubious benefit. Any attempt to accredit content will only serve to slow down the rate of production, and is as sensible as accrediting books on library shelves. Instead, what should be accredited is an institution's alignment to a framework of Freedom and Openness.

Personal learning environments (PLEs) as an approach to technology for learning are also emerging, and include specialized technologies as well as established ones such as blogs. What PLEs do is to create the possibility for individuals to aggregate their own learning opportunities. In addition, new standards

[2] This content is available online at <http://cnx.org/content/m19865/1.3/>.

for interchange of learning materials and activities are creating much more scope for collaborative cross-institutional virtual classrooms that do not rely on institutions sharing the same underlying technology.

Recognition of learning achieved by institutions that are aligned to a framework of Freedom and Openness should be the new way to provide assertions of quality, not accreditation of the resources used. This can be built on the base of 'recognition of prior learning' which is already in place in many institutions, including the University of the Western Cape where I work.

This is a possible brave new world of education 3.0, one in which the organizational constraints and boundaries are removed, the need for aggregation is not the only model for accredited learning, and the long-tail reaches into higher education at last. I do not see it as a replacement for institutional learning as it happens currently, but as another layer on top of it that extend the value of higher education into new spaces and that enable synergy among different individuals and institutions to be created.

Is this a desirable world? Is it a world that we will see in our lifetimes? Or is it the ranting of a digitally-disturbed, hyperlinked lunatic?

26.2.2 Comments

26.2.2.1 1. Patrick Masson - June 1st, 2008 at 8:28 am

Derek,

Quite a timely post for me. I just came back from the SUNY Conference on Instructional Technologies (CIT). The session topics focused primarily on "Web 2.0″ technologies and techniques; wikis, blogs and of course the now ubiquitous LMS.

In all of these sessions, Derek's model for content development and delivery was evident. Many contributors using disparate tools generate content then pass the finished product through to an institutionally managed tool where it is aggregated and managed by faculty. The focus was on many contributing to a single interface: student generated content, distributed content, etc.

Derek's model of the Personal Learning Environment would appear to provide multiple aggregation environments (equal to the number of students–potentially more) that host the independently developed content.

Only one session at CIT touched on this, "Whose technology is it anyway?" presented by Steven Zucker, Beth Harris and Eric Feinblatt of the Fashion Institute of Technology. The session description asked, "Why haven't we, as educators, been asking this question of ourselves? Why is technology exempt from the lessons we've learned about involving students in their own education? Why is technology something that an institution 'delivers' without significant input from the students themselves?

In the presentation they displayed two screen shots, one of the campus portal that included announcements, calendar events, email, etc., what the campus felt the students needed, and the other, a student generated PLE built in their own instance of Wordpress. The idea I took away from this was that students are not only better suited to identify and organize their own content, they are better suited to define the tools to do so.

To me it seems plausible that a course's faculty member publishes course specific content, references, activities, etc. to a course site, but the students aggregate that (and other resources they may find) within their own PLE, a wiki, a blog, iGoogle, a basic web page, etc. Really just like they used to with their own notes, folders, binders, lockers, desks, etc. These independent sites (maybe we call them "cites?") can also be shared between students as course resources.

I noticed here that there is a link to Digg on this page. I wonder how such tools could be used to identify student "cites" as resources for the class? Could these be referenced and scored similarly where those that received multiple visits, comments, referrals, rankings, be scored (valued?) higher just as search engines, Digg, del.icio.us does. Is Education 3.0, Web 3.0 or Web2.0-2.0 (my Web2.0 "goes to eleven") really all about integration and interoperability?

Great post (and I'm happy to have for once beaten Richard Wyles to the punch and posted the first comment - woohoo),

Patrick

26.2.2.2 2. Patrick Masson - June 1st, 2008 at 8:38 am

Just re-read the post, I did not mean to state that the current state of course management is "Derek's model" rather that how Derek described the current status of course and content development was evident in the conference presentations. That's what I get for waking up early to beat Richard in with a post...

26.2.2.3 3. Derek Keats - June 1st, 2008 at 11:54 am

Hi Patrick,

Just a quickish response to:

"Is Education 3.0, Web 3.0 or Web2.0-2.0 (my Web2.0 "goes to eleven") really all about integration and interoperability?"

Education 3.0, as Philip and I conceived it in our paper (http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1625/1540[3])

is not a technology but a consequence of the emergence of technologies generally recognized as Web 2.0 (I suppose you could paraphrase Microsoft, and say Web 2.0 or better), as well as changes to the way in which individuals and institutions behave. This includes recognizing learning , as opposed to recognizing crude measures of having been taught (which is mostly what we do now with some exceptions).

There is a bit more on Education 3.0, including something on the framework of openness idea in my blog at http://www.dkeats.com/blog/[4]

Scroll down past the Sekuru and the Sharks (and perhaps past the pics I will be posting there tonight), past the twitter mashup, and you will find it there entitled "Challenges for Quality Assurance in an Education 3.0 world". There is a slidecast as well as a PDF of the paper given at the UNESCO conference on Quality assurance.

Some of the keys to Education 3.0 are

- students owning and managing their own learning;
- aggregated courses are not the only way to get accredited learning;
- institutional boundaries are more permeable;
- processes are in place to recognize and accredit learning no matter what the source.

Hope this is useful.

Regards from a windblown and sunburnt blogger, Derek

26.2.2.4 4. coarsesalt - June 2nd, 2008 at 5:34 am

Hi Derek,

Just had your blog passed onto me... seems we share more than similar perspectives, I'm from a once fishing village in rural New Brunswick.

Interesting stuff... and I'm particularly interested in the fourth of your 'keys to 3.0′ the accreditation of learning. If I understood your post correctly, the accreditation universities will focus more on accrediting the 'process of learning' and, if the extension works, 'the process of knowledge construction' and not simply attempt verify the existence of that knowledge in the gray matter of one particular student. This, to me, is the critical need... at least in this transitional period between a potential open knowledge society and one that still operates on a pre-knowledge abundance mentality.

I'll just post http://www.innovateonline.info/index.php?view=article&id=550&action=article [5] here in lieu of typing out the rest of the article.

Looking forward to reading the rest of it. dave cormier

http://davecormier.com/edblog[6]

[3] http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1625/1540

[4] http://www.dkeats.com/blog/

[5] http://www.innovateonline.info/index.php?view=article&id=550&action=article%20

[6] http://davecormier.com/edblog

26.2.2.5 5. Wayne Mackintosh - June 2nd, 2008 at 12:56 pm

Hey Derek, Great to see your post @ Terra Incognita.

The University of the Western Cape is a leader in progressing FLOSS for education and FORE. I was particularly pleased to read your comment about many of the "free" content licenses being anything but free . Especially those CC licenses incorporating NC and ND restrictions.

Fortunately the free knowledge movement has made some progress in this regard, largely due to the interventions of the Wikimedia Foundation and support from the Free Software Foundation. Recently the Creative Commons have included a Free Cultural Works[7] approved logo on the two CC licenses that meet these requirements . See for example:

CC-BY[8] and

CC-BY-SA[9] .

Increasingly, education institutions are now signing the Cape Town Open Education Declaration — which I think is a good thing. At last we are seeing a return to the true values of education — namely to share knowledge freely. However, these commitments need to be followed up with appropriate reward and incentive mechanisms at the institutional level within the academy. One example is the implementation of progressive and supportive IP policies.

I know that UWC has a progressive IP policy and has been a pioneer in this area. What advice can you give institutions who have signed the Cape Town Declaration in taking the next steps in supporting their commitments? How did UWC go about changing and implementing its IP policy? What lessons have you learned from the process?

It seems to me that once an institution commits through a supportive IP policy — the growth in FORE is impressive. A good example is Otago Polytechnic in new Zealand. They have implemented a new IP policy where all resources default to a CC-BY license. Since the implementation of this policy — free content development at the Otago Polytechnic[10] has been prolific and inspiring.

Great post Derek — thanks. Wayne

26.2.2.6 6. Leigh Blackall - June 2nd, 2008 at 7:17 pm

I'd be interested to hear more about the things to be concerned about in:

> *Of course, it is not all good. There is a deeply disturbing and absurd movement to try to accredit the so-called "open educational resources," with UNESCO seeming to wish to do this for reasons that are of dubious benefit. Any attempt to accredit content will only serve to slow down the rate of production, and is as sensible as accrediting books on library shelves. Instead, what should be accredited is an institution's alignment to a framework of Freedom and Openness.*

I don't know about UNESCO, but I can see benefits in streamlining migration of people with skills and qualifications that are internationally recognised. And I see that international recognition possibly developing through collaborative efforts in OER development. What exactly are the absurdities and dubious benefits your are referring to? I think I can agree that accrediting content is a silly idea, but OER could be about much more than just content. As a friend asked me recently, does OER really refer to resources, or is it more accurate to refer to it as Open Education Reform. In that sense, OER would be about much more than content, and all about networked learning, networked teaching, group learning, student exchange programs, teacher exchange programs, and a mashup of short courses offered by a range of people and institutions that could amount to an international degree or other sort of certificate or qualification..

[7] http://freedomdefined.org/Definition
[8] http://creativecommons.org/licenses/by/3.0/us/
[9] http://creativecommons.org/licenses/by-sa/3.0/us/
[10] http://wikieducator.org/Otago_Polytechnic

26.2.2.7 7. Derek Keats - June 3rd, 2008 at 12:36 am

To try to respond quickly to Wayne MacIntosh first, and for those who have not been part of the "free" or "open" discussion before....

The notion of "open" is borrowed from the concept of "open source", a software concept that arose mainly out of people not being able to deal with the steadfast focus on Freedom by founder Richard Stallment by some of the original proponents. The notion of "open source" really focuses on business benefit, not on the Freedoms that the software embodies. The "open" of course applies to the source code. In the case of content, that would imply that the original source files used to produce a work are available in their original (ideally open) formats. But of course, in the case of 99% of the content that is supposedly open, this is not the case. If you want to create a derivative work, you often have to re-engineer the raw materials, so they are neither open nor free.

Then there are licenses that restrict the Freedom inherent in the resources, with the NonCommercial restriction being particularly evil in this regard because it creates license incompatibilities that preclude building composite derived works. The issue is not about commercial use, but the fact that if YOU use a NC restriction, it prevents me from including some of your content in my less restrictive works, and PREVENTS the users of MY content from receiving potential benefit from people who may wish to contribute but use the works commercially.

I am opposed to anything that impedes velocity, and the NC restriction and accreditation would both impede velocity. Indeed, if they were applied to software, we would almost certainly have NO Free or Open Source Software today. The only way to overcome this, and still retain velocity, is to pump large volumes of money into it, which is of course what MIT and others have done. But that is not sustainable.

How did UWC succeed with its strategy on Free Courseware and Content? Well, we are an institution which is deeply rooted in the intellectual engagement with the issues of freedom as we were the intellectual home of the struggle for political freedom in South Africa. We understand both the tenets of freedom, and what it is like not to have it (I have my mementos of rubber bullets and teargas cannisters to prove it). As an institution we therefore have deep roots in the key concept of Freedom that most of the Open conversation seems to miss, and be shy to talk about. We are not shy. It is our life blood. Thats why we talk about Free Courseware and Free Content. To be free it must be open, but it can be open without being Free, and that is incompatible with our reason for being as an institution.

Our chancellor is Archbishop Desmond Tutu, who I am sure you will all recognize as an uncompromising champion of freedom. He has personally signed the Cape Town Declaration as well. You can here him talk about freedom in the digital age at

http://www.dkeats.com/index.php?module=cms&action=showfulltext&id=gen13Srv30Nme10_4576_1209888958&secti

Perhaps they will help explain where we come from.

Unfortunately, our growth in production of OERs has not been commiserate with our stance YET for a number of reasons. However, we believe that collaboration among students is the key to at least one aspect of it. Thus we have the Rip, Mix and Learn project, which has students producing content as part of their own learning, and making it available to the next crop of students. This is FORE in a social constructivist scenario, much of OER is instructivist lead.

But there is a role for that as well. In the second semester, we go live with our new learning management system, which will automatically make all of our course materials available under a CC: BY-SA license. We are also starting a podcast project that will see lectures automatically podcasted from the classroom (where the lecturer chooses to do so), and by next year, this will be in all our classrooms, thus potentially making all our lectures available under this license.

Sorry, rambling while eating my granola and yoghurt, but hope these comments are useful, Will respond to the other two posts during the course of the day.

Regards, derek

[11] http://www.dkeats.com/index.php?module=cms&action=showfulltext&id=gen13Srv30Nme10_4576_1209888958&sectionid=gen13Srv30Nme

26.2.2.8 8. Ken Udas - June 3rd, 2008 at 6:42 am

Wow, thanks for the great post and comments. I want to point back to Derek's provocative statement about accrediting Open Education Resources, and push Leigh's questions a bit further.

> *When we talk about "accrediting" open educational resources, what do we mean?*

I am assuming that is has something to do with assuring quality. I suppose that there are a whole lot of quality assurance models in education. Many governments become involvement with quality assurance through public agencies, there are also regional and professional accreditation processes that strive to ensure institutional and curricular quality. I suppose that most colleges and universities have internal processes in which they "accredit" learning materials, but I think that it is usually pretty contextual. That is, factors such as teaching methods, characteristics of learners, level of the course within an overall curriculum, educational commitments of the institution, department, and faculty are taken into account together and not disaggregated. In many settings this happens within a college, department, and/or at the individual level f the faculty member – not so much by individual students. That said, in the bigger picture, I suppose that individual learners do make decisions based on their perceptions of quality and value.

In any event, it seems that it is perhaps a bit inappropriate to "accredit" Open Educational Resources in the same way that we quality assure academic programs or course instances. It seems to me though that there are characteristics that have little to do with the "content" in terms of its accuracy, relevance, logic, meaning, etc, but does have to do with other important qualities such as ability easily find, access, use, modify, and reuse the OER. Are these qualities that might be assured or at least described?

If so, how might we promote such qualities without impeding velocity?

I raise this because I think that it might be helpful to have some method to identify OER (define this as broadly as you like) that is most "usable" and "useful," taking into account factors such as licensing, adherence to open formatting and packaging standards, and other characteristics that promote modification, reuse, and sharing (for as wide a group as possible).

Cheers - Ken

26.2.2.9 9. christine geith - June 3rd, 2008 at 11:28 am

Derek, I like how you describe education 3.0 as another layer in education providing more options for individuals. E3.0 it seems is less about organizations provisioning education and more about individuals provisioning their own.

I argue that an abundance in both learning resources as well as "accreditation" is what will enable velocity. When we provision our own learning, there is an important role for accreditation in its broader meaning as a 3rd party stamp of approval.

For instance, when we travel, we can choose to travel on your own or we might go with a package deal where everything is pre-planned and quality controlled. Both forms of travel benefit from various 3rd party stamps of approval. These can be ratings and comments from fellow travelers, recommendations in a published guidebook, or the brand name of the organization offering the experience. Different trips benefit from different kinds of 3rd party recognition depending on our purpose for the trip.

Likewise, in education there are stamps of approval for all of the parts of the system: content is peer reviewed, published and awarded prizes by 3rd parties whose names are respected among a particular community; processes can be ISO certified for quality; degrees can earn approval from professional bodies that are the keepers of standards and best practices in their particular communities; institutions can be recognized by governments and accreditation bodies by demonstrating adherence to rules and practices; and individual learning outcomes can be recognized by normed exams and evaluation by recognized evaluators – to name a few.

A long tail in open learning resources benefits from a wide variety of stamps of approval from an unlimited variety of 3rd parties – including individuals. How else can we find what best suits our purpose, including the characteristics of openness, in an ever-growing abundance of good stuff?

Our purposes and contexts are not only local, but personal. We need stronger recommender systems and ways to identify useful resources fit for our individual use. I believe that velocity in the growth of resources needs to be matched by growth and variety in stamps of approval so we can make more informed choices.

IMHO - Chris

26.2.2.10 10. Derek Keats - June 3rd, 2008 at 12:26 pm

Hello folks, Home from a long day, done my chores of cooking a pot of currey for my rather large family, and now I can try to get into this again. Let me first post a reply to Dave Cormier (interesting name, also common on the west coast of Newfoundland).

Dave, you raise interesting questions, and answering them I am sure will help me understand my own thinking better. So let me explain accreditation of learning. Currently, many institutions offer a serviced to prospective students who may wish to study at a level higher than their formal qualifications would permit. For example, doing a Masters without doing an undergraduate degree. This process is something that we are quite good at at UWC, and Alan Ralphs is one of our professors who conducts research on it. In such a case we would typically ask the prospective student to submit a portfolio that demonstrates their learning (not their experience, their learning) as well as go through an interview process, and various other things.

Now imagine that you are interested in the evolutionary biology of bacteria inhabiting the left legs of fleas on the back of a duck (perhaps a bit too specific, but a metaphor for something out in the long tail of the curve). You discover some resources on flea biology, listen to some lectures from Stanford on evolutionary biology, and you start to come to understand the selective pressures that affect bacteria on the left legs of fleas in general, and also within the broader environmental conditions of a duck's back. As you delve into this, you also learn the basics of the discipline, and build up a learning portfolio. You realise that you have a gap in that you do not understand how mutation happens, so you decide to enroll in a course at the University of Zambia, where they have a good professor who teaches it via online methods. You join an online study group of people who are discussing the ecosystem of a ducks back, and you add all of that to your portfolio.

You then approach an institution that is accredited as being aligned to a framework of openness, and whose recognition of learning processes are internationally acclaimed. I would like it to be the University of the Western Cape of course. You submit your portfolio, and you go through the recognition of learning process, and that September you graduate with a bachelors degree in Science with a major in Duckback Ecology or something like that.

This would be what I mean when I talk about accreditation. What I find silly is the notion that the content that you use to accomplish all of this needs to be accredited because accrediting infinite possibilities will require infinite funding.

Hope this makes some kind of sense. Its a bit train of thought stuff, but this IS a blog, and I am not seeking accreditation :-)

26.2.2.11 11. Derek Keats - June 3rd, 2008 at 12:41 pm

Hello again,

Let me reply to Leigh, and then I have to go chase kids and stuff. Will come back in a bit to respond to the rest, if not, then tomorrow morning.

I agree with you that we need people with internationally recognized qualifications, and certainly have not advocated doing away with accreditation. I just don't think that the RESOURCES themselves (i.e. the digital equivalent of textbooks) are the things to accredit. Rather accredit the PROCESSES, which is typically done by accrediting the PROGRAMME or the INSTITUTION.

If you interpret OER, not a term I would use as I prefer FORE (Free and Open Resources for Education - to emphasize Freedom), as being everything including the learning then accreditation will certainly play a role. Currently, accreditation rests with the institutions or national bodies that accredit them. So the alignment of an institution to a framework of freedom and openness, which would include its processes for

recognizing learning, would to me be the basis for such accreditation. The role of the resources per se is irrelevant except that they exist and can be used.

The reason that I say accreditation of the resources however defined will reduce velocity is that every hurdle is impediment that will result in less resources being produced. I say it is absurd because attempting to do something that cannot be done is absurd, if you don't believe me spend some time trying to throw a tennis ball over the Pacific Ocean from Vancouver to Hong Kong. It is of dubious benefit because even if it were possible, it would add no value. However, if we are talking about accreditation of learning, then that is another matter. Thats where we need to get to!

regards, Derek

26.2.2.12 12. Derek Keats - June 3rd, 2008 at 12:51 pm

Just a quick reply to Ken before I go, just a small part of Ken's post. I think replied to some of Ken's considerations in the other posts before I read Ken's contribution.

> *it might be helpful to have some method to identify OER (define this as broadly as you like) that is most "usable" and "useful,"*

Is this something that needs a third party involved? We are in the age of the read-write web, social content, folksonomies, and kudos. Let the community decide what is useful. Accreditation in this context is an old fashioned, aggregative, scarcity mentality concept. When you have communities, the communities themselves are the best judges of what is useful.

Take a simple example, what are the most viewed presentations on Slideshare? What are the ones that are bookmarked the most? What are the ones that people have added as their favorites? What are the ones that are most often embeded? There lies the basic means with which newcomers can get a sense of the usefulness of something. And in a world of abundance, there is always another resource to fill the gap. interestingly, my presentation on Quality in Education 3.0 on there got over a thousand views in one week, so there must be quite a few people thinking about these concepts.

Oddly though, the proponents of new ways of doing are still aggregating, nogal? Is that not a bit weird?

26.2.2.13 13. Wayne Mackintosh - June 3rd, 2008 at 3:31 pm

Hey Derek,

Knowing the values underpinning freedom and what freedom means, is going to be the cornerstone of future success of FORE — as RMS says, we need to know what freedom means because "freedom is easily lost."

Thanks for the link to Archbishop Tutu's opening at the Digital Freedom Exposition. By way of example I've attempted to illustrate the velocity of free content growth. Thanks to a CC-BY-SA license — WikiEducator is able to enrich the learning experience of our community by incorporating the video into our tutorial on free content[12] .

Thanks Derek for an inspiring contribution.

26.2.2.14 14. richardwyles - June 3rd, 2008 at 7:11 pm

Fantastic thread - Pat, I'm late on this one ;-). When leading the NZ OER project we grappled with this concept of accreditation of content quite a bit. A key consideration for us was that we produced OERs of high quality (in an e-Learning pedagogy sense) and fit for purpose to address a particular curriculum need. So while not formally stamped with anyone's approval I can see this approach evolving to where a Moderator group "approves" a specific version of content for use in a particular field of study much in the same way as prescribed text-books. However it could never be some over-arching body like UNESCO - I agree the notion is absurd. However, content moderation is a parallel of what happens in the FOSS world

[12] http://wikieducator.org/Wikieducator_tutorial/What_is_free_content/Free_content_defined

- "benevolent dictatorship" is what Linus Torvalds once referred it to as. There's also an undercurrent that true OERs need to have the lowest barriers to entry. Unfortunately I see this often leading to lowest common denominator approaches that fail to inspire the learner. Media neutral source files can alleviate that tension but this can also raise the bar in creation. Sure, wikis are part of the solution but in a Web 2.0 OERs must be much more than that.

Derek, on another note you might want to check out http://www.mahara.org[13] - early stages of a PLE project & at http://www.myportfolio.ac.nz[14] an attempt with Mahara to break down institutional barriers.

26.2.2.15 15. Wayne Mackintosh - June 4th, 2008 at 12:07 am

Hey Richard, Great to touch base in the forum.

I'm not sure whether I understand your suggested correlation between lowering the barriers of entry and quality. Quality is both an elusive and complex concept. Quality means different things to different people That said, I think quality is equally important for both open and closed authoring approaches in education.

What do you mean by: " Media neutral source files can alleviate that tension but this can also raise the bar in creation"? and how does this relate to quality?

Cheers, Wayne

26.2.2.16 16. richardwyles - June 4th, 2008 at 12:37 am

Hi Wayne,

What I'm suggesting by the "lowest common denominator" comment is that rich media and interactivities commonly associated with LMSs can be over-looked in the desire to keep perceived barriers to the content as low as possible. In terms of reusability it is fair to say there are shades of openness as more complex learning objects will require more technical knowledge for reuse. That is not a comment on quality per se, more a comment that engaging use of MM or interactivities can be overlooked and that can lead to less engaging outcomes. That tension can be alleviated by standardising on open formats (e.g. XML) for source materials but like open source, I still see the need for skilled artesans for good eLearning experiences to be developed on top of that - it's asking a lot from the learner otherwise. Polansi (2003) suggests that an ideal situation would be to develop several interface and stylistic environments that are user-controlled, which would enable the user to choose the most suitable form of interacting with and exploring the knowledge. That still requires initial creation which can be complex hence shades of openness. In eLearning to me, there's a spectrum between technology and content - we operate at that nexus. PLEs, wikis, ePortfolios and multi-user virtual environments like Second Life make it possible to move in Polansi's direction to some degree but I'm also of the view that even if architectural drawings were open content I still might like to hire a builder - the lowest common denominator approach won't meet all needs.

Sorry, probably haven't answered this that clearly. Got to go, I'm cooking dinner!

cheers, Richard

26.2.2.17 17. Wayne Mackintosh - June 4th, 2008 at 12:59 am

mmm — thinking out loud here.

I'm not a programmer and would not be able to hack on the Linux kernel. However, I use free software because the code is open — knowing that I have the freedom to employ a skilled coder to do magic if I need it. I'm not sure that I want Polansi's future if its locked behind closed formats.

I'd rather say that — hey Polanski has a few cool ideas, lets see how we can develop free and open equivalents in realization of that vision. Sorry — I don't buy the shades of openness argument.

I'd rather be free

What's for dinner — going by Wellington traditions its bound to be a treat.

Cheers, Wayne

[13] http://www.mahara.org/

[14] http://www.myportfolio.ac.nz/

26.2.2.18 18. Derek Keats - June 4th, 2008 at 1:06 am

Just to chip into the discussion of Wayne and Richard, and then I will come back to Christine, the reason being purely pragmatic. I have 3-4 minutes before I have to jump in the shower and head off to the office.

Richard is absolutely right that a plethora of source files does not mean that the professors will be able to use them themselves. But one thing I can guarantee is that if they are in a format for which software is easily available, their STUDENTS will be able to use them, and they will do absolutely awesome things with them. When we think about the limitations of what professors can do, we are thinking with a scarcity, aggregative mindset. How much wheat can you grow in a flower pot?

But even with the aggregative approach (the professor aggregates resources, and feeds them to the students), having the source materials makes it possible to do more with them, even though you might have to use a third party to do so. The same is true of software. Having the source code does not mean that you will have to edit the source code and compile it yourself. Indeed, for most of the software that I have obtained modifications, I got someone else to do it even though I am a passively decent programmer in several languages. I simply would not have the time, never mind the skill.

One should also be careful not to over-complicate things. I might edit a source file in the Gimp and include it in an Open Office presentation. When I make my presentation available as a piece of Free Content, the source of that image should also be available. There are two immediate benefits for that, one being that someone can change it to suit a new purpose, and the second one (perhaps more important) is that someone can study it to see how I did it and improve their Gimp and presentation skills. Learning from access to the source is very powerful.

If we take Second life as an example, its just a bunch of images with some navigation. So, again making the images available could indeed be of benefit even though the end product is quite complex.

Taking the architectural drawings as an example, my wife built our house. She had no experience at all but acquired it from a combination of open (but not free) resources on the Internet, and the fact that builders were willing to share their knowledge openly with her over a cup of tea at their building site. During the building she had to change the plans, so to do so she learned how to do the drawings, and did them manually because the source files were not available to her even though we had software that could have accessed them. She worked with a mixture of builders and semiskilled labour to build the house. Our neighbour is doing the same thing, but has hired people to do everything from plan to product. Just because the option is there doesn't meant that EVERYONE has to use it. Some will, some won't, and some will create something really new that can be shared.

I am waffling and not quite sticking to the topic, but find this angle quite fascinating and worth further exploration sometime.

26.2.2.19 19. Derek Keats - June 4th, 2008 at 1:13 am

A quick note for Christine, will come back later:

> *I argue that an abundance in both learning resources as well as "accreditation" is what will enable velocity. When we provision our own learning, there is an important role for accreditation in its broader meaning as a 3rd party stamp of approval.*

Hopefully I have made it clear now that I agree with this. By velocity I was referring to the speed with which resources get created, likening it to the software world, where small changes to licenses or a project's policies can impede production. Accreditation of resources will create a hoop that not everyone might choose to jump through, thus slowing velocity.

Accreditation of learning is another matter entirely. There institutions should still play a role, unless we can come up with some other mechanism that is hard to cheat.

26.2.2.20 20. Derek Keats - June 4th, 2008 at 10:48 am

Hello folks, after a brief discussion with some colleagues at UNESCO I have to admit that I was not only wrong in the statement:

> *There is a deeply disturbing and absurd movement to try to accredit the so-called "open educational resources," with UNESCO seeming to wish to do this for reasons that are of dubious benefit.*

but I was radically wrong. Indeed the notion of accrediting learning is widely understood in UNESCO and that is very encouraging. I apologize for implicating an innocent party :-)

Just for the record, I chose the words absurd and dubious deliberately in the hope of being challenged, and I think that produced some useful discussion. I am just wondering if there are any readers who think the notion of Education 3.0 is radically wrong or bad, and if the idea of self-learning using Free and Open Resources is something that we should reject? Will it happen? Who thinks about autogogy?

26.2.2.21 21. Ken Udas - June 4th, 2008 at 2:49 pm

Derek, Hello. Just a quick response to your question to be about "quality assurance" of content.

> *Is this something that needs a third party involved?*

No, I do not think a third party is at all necessary, because the quality will frequently be based on need and circumstance, and nobody knows more about what I need than do I. That said, I was really thinking about some sort of guidelines for those creating and packaging content to be as usable/reusable for as wide an audience as possible.

Cheers, Ken

26.2.2.22 22. richardwyles - June 4th, 2008 at 4:11 pm

Hi again,

For Wayne I need to qualify my meaning on shades of openness because I'm a strong advocate on open standards and formats. There is most definitely shades of openness due to many different aspects. Derek describes one - often people will provide the output as an open resource but not the source file. A lot of open content wasn't constructed with openness as being a primary concern - archived materials subsequently made "open" for example. These can be very difficult to reduce, extend, edit etc. The parallel with open source is that some projects are more open in the sense that the community they have is open and easier to engage with, the code is conducive to hacking and thereby innovating further. In contrast, although having an open license, many projects have arcane coding structures or unwelcome governance structures, sometimes both! Hence my shades of openness comment.

This write-up covers outlines our learning curve with the NZ OER project.

http://oer.repository.ac.nz/mod/resource/view.php?inpopup=true&id=1863[15]

cheers, Richard

P.S A wild goat stew with stout ;-). It's wintry here, All Blacks start their season this Saturday.

26.2.2.23 23. Wayne Mackintosh - June 4th, 2008 at 5:30 pm

Hi Richard,

Wintry in Wellington :-(— that said I wouldn't mind if the Summer got started here in Vancouver. Raining again today. I won't go into the Rugby. For the benefit of friends on the list — Richard and I are old buddies and its a bit of a tradition for us to compare notes with a tad of passion.

Linking back to Derek's point about velocity and impediments — I firmly believe that closed file formats are an impediment to the work of the freedom culture and while there may be shades of openness — I don't think there are shades of freedom when speaking about free cultural works. I think the adage that all OERs may be open in terms of access — they are certainly not all free!

[15] http://oer.repository.ac.nz/mod/resource/view.php?inpopup=true&id=1863

WikiEducator and the Wikimedia Foundation projects (Wikipedia, Wikibooks, Wikiversity, Wikinews etc.) all subscribe to the free cultural works definition. (http://www.freedomdefined.org[16]) and there is a requirement to use free file formats and to make the source available.

I miss our interactions.

Cheers, Wayne

PS — Have you migrated to a Free Software OS yet? In other words are you walking the talk?

26.2.2.24 24. richardwyles - June 4th, 2008 at 5:43 pm

Lol - ouch! Yes, I still have Windows on my laptop...& justify it by having to test different FOSS in a MS environment, maybe a pathetic excuse but the Catalyst folk tend not to test stuff in IE etc. Vista is so cool....not!

26.2.2.25 25. Patrick Masson - June 4th, 2008 at 8:23 pm

All Blacks - I have no idea. But it's first intermission in the Stanley Cup FInals so I've had a chance to catch up on the discussions. To address Derek's question:

> *"I am just wondering if there are any readers who think the notion of Education 3.0 is radically wrong or bad, and if the idea of self-learning using Free and Open Resources is something that we should reject? Will it happen? Who thinks about autogogy?"*

I think it's already happening, especially in technology. Many contributors to open source projects are self taught programmers who found a tool that satisfied a need, then began development for personal use. As a manager within several IT departments, I have valued practical experience over formal credentials in my hires. The various projects a person has worked with and tools like Brainbench have helped me to identify some of the most skilled and "educated" developers. I've met several folks with their MCSE/MCSA or a degree in CS that can't contribute.

26.2.2.26 26. Derek Keats - June 5th, 2008 at 12:33 pm

Just to take some thing Richard said and mention it slightly out of context

> *archived materials subsequently made "open" for example. These can be very difficult to reduce, edit etc.*

A rich source of learning materials can be found in PowerPoint and OpenOffice presentations, but probably Powerpoint mainly given the prevalence of its use. In addition, these common tools lend themselves to making simple tutorials.

We have been working on a project with San Jose State University, the University of Puerto Rico and Unicamp (Brazil) to make an online presentation re-use system. You can play with it at http://chameleon.uwc.ac.za[17] . Right now you can upload a presentation, have it converted to the alternative format, a sequence of images with an auto play facility, Flash for inserting as a tutorial, and pick up a presentation and give it live with live voice and collaboration tools (the latter still experimental). We are working on making the assets within the presentation reusable, as well as building tools to extract semantic information from the slides. The last piece is a presentation mashup utility that is still under development and not yet available on the site.

You can tag, and blog the presentations as well. There are plugins for KEWL3 (and other Chisimba applications) as well as one available for Moodle that you can download from my site at http://www.dkeats.com/index.php?module=blog&action=viewsingle&postid=gen13Srv30Nme10_1445_1212344985&userid

[16] http://www.freedomdefined.org/

[17] http://chameleon.uwc.ac.za/

[18] http://www.dkeats.com/index.php?module=blog&action=viewsingle&postid=gen13Srv30Nme10_1445_1212344985&userid=1563080430

(sorry for the long URL, I need to turn on short URLs but keep forgetting).

We are experimenting with this because it makes commonly available tools suitable for preparing reusable content, and it makes no difference if you use proprietary or FOSS tools, the results are still available.

We have only scratched the surface of these opportunities. I can imagine doing something similar for other types of media as well. Could thinks like that help to make otherwise not-reusable content into reusable forms? BTW, we could do the same thing for PDFs given a month or so to work on it. Would that be useful? Is this a useful approach to generating Free Content? Or are the media types changing too fast for this to be useful? Thoughts?

26.2.2.27 27. Derek Keats - June 5th, 2008 at 12:35 pm

P.S. It does not work for PPT 2007 just yet.

26.2.2.28 28. Derek Keats - June 5th, 2008 at 12:43 pm

I like the analogy of self-learning that Patrick made to self-taught programmers.

> *I think it's already happening, especially in technology. Many contributors to open source projects are self taught programmers who found a tool that satisfied a need, then began development for personal use.*

This is certainly true of most of the people who contribute to our software projects. I guess I can use myself as an example: I have never taken a course on anything to do with technology, but am the CIO of a university. But we have not gone for accreditation of our learning. On the other hand, the community in which we operate recognizes that we have learned something (otherwise I would not be here writing this). So perhaps a part of Education 3.0 is not accreditation per se, but "demonstrated community recognition of learning achieved" or something of that nature. Thus, passionate learner + F/OER + community = Accreditation 3.0.

26.2.2.29 29. Wayne Mackintosh - June 5th, 2008 at 1:58 pm

Derek —

Chameleon is VERY cool — one of the few web conferencing services that is working out the box on my Ubuntu. Kudos to the Chameleon team.

I have a couple of technical questions and ideas for collaboration — but will take these off line so as not to clutter the list with geek speak.

This is the first service in the FLOSS arena that will rival slideshare. Amazing stuff.

Wayne

26.2.2.30 30. richardwyles - June 5th, 2008 at 4:22 pm

Derek,

Yes, Chameleon is very cool - provides Moodle with Slideshare which is something many of our clients want. Wrt "passionate learner + F/OER + community = Accreditation 3.0″ I very much agree but also see a place for some form of recognisable framework for it. I have a project soon to start on this that you and Patrick amd others might be interested in. There's a snippet at https://eduforge.org/projects/osll/ [19] - more to come, entirely virtual so global by nature.

cheers, Richard

[19] https://eduforge.org/projects/osll/%20

26.2.2.31 31. Leigh Blackall - June 5th, 2008 at 5:27 pm

Hi Derek,

I am very interested in the possibilities of people using OER (Freely) for direction and guidance in their pursuits of learning, AND in educational institutions positioning some of their resources and services to enhance and recognise this avenue for learning. Perhaps Otago Poly and West Cape could/should be collaborating more! We have a very effective and progressive Assessment of Learning Centre, who may soon be in a position to offer efficient assessment services like this.. And I am keen to find ways to share teaching and assessment internationally.. perhaps our teacher training and educational development work? http://wikieducator.org/Otago_Polytechnic[20]

I have referenced your paper on Edu3.0 in my own writings, and it gained traction here in our institution for a while. But I think we should be careful in the use of catchy titles like Edu3.0, because it tends to put up barriers with some camps, and some educational veterans who may in fact be sympathetic to the principles and methods, but as yet have no sympathy or critical awareness for computer mediated learning lingo.

So I think we should be disciplined in our efforts to use words that have utility beyond catchiness, but not so much as to get bogged down in semantics. The words we use should be backward compatible, and as forward compatible as we can be. Web2 and Edu3 are neither backward compatible, or forward usable. I think there will soon be a time when we who have used terms like Web2 and Edu3 will cringe with embarrassment. (I do already).

To replace Web2, I am starting to use Socially Constructed Media and Communications. Too wordy I know, but it is an attempt to be backward compatible with social constructivsts, and future usable with the media and communications sector generally.

For Edu3, perhaps it is Free and Open Education Reform.. but I'm sure we can do better. Certainly better than Edu3

26.2.2.32 32. christine geith - June 5th, 2008 at 10:38 pm

Leigh - I like your term "socially constructed media and communications" - and I'd like to think we could use a term like "Free and Open Education Reform" and that it would actually be helpful. Some are uncomfortable enough with the words "Free and Open" anything. But hey, let's try it.

I want to circle back just a moment to the accreditation term. We need more refined terms here as well. Sounds like we all agree that accreditation of learning is the important thing. Yet, even that has many different methods and varieties - a brief concept paper I pulled together for the OER conference in China (and that Phillip from Derek's institution kindly presented) shows some of the methods by which learning can be accredited http://docs.google.com/Doc?id=df9f5w7f_6hs7fg8cj[21]

One of the important pathways to figure out and scale up is what Derek called Accreditation 3.0:

passionate learner + F/OER + community = Accreditation 3.0.

This catchy term for it could be useful! I'm glad to hear that Otago is also doing some work in this direction.

As for the barrier-laden concept of "accrediting" or getting "stamps of approval" for content - what I had in mind was what the Rice Connexions project does with scholarly communities: they select and review resources that have already been shared - a value-added "lense" into the content from their perspective. http://cnx.org/news/LensesIntroduced[22]

Cheers, Chris

26.2.2.33 33. Leigh Blackall - June 5th, 2008 at 11:12 pm

Hi Christine,

[20] http://wikieducator.org/Otago_Polytechnic
[21] http://docs.google.com/Doc?id=df9f5w7f_6hs7fg8cj
[22] http://cnx.org/news/LensesIntroduced

A question that comes to mind when reading your paper.. why do we need open courseware even!? or OER for that matter? The practical truth is that people are learning via the internet regardless of its copyrights, that information online has always wanted to be free, that Youtube et al are just flat out ignoring copyright and that the horse has clearly bolted and information IS free. Of course, the educational institutions have been very slow to catch on to the business models, and so continue to lock up their research outputs and educational materials. Slowly they might be realising the losses they are taking by retaining those practices, and OER, OCW provides the escape routes for them.

But my main point is that increasingly we don't need the institutions and their content. Either someone has already copied it and put it out there, or someone else has produced an alternative. Even better is those alternatives are like Wikipedia and so not only show the institutions that their content is redundant, but that Wikipedia is so successful it will give for free back into the Institutions that for some reason can't open up. So, content is dead.

But the assessment of learning, the accreditation, and the learning support services remain valuable. Increasingly so if we are talking about recognition for largely self paced, self directed even! learning through the Internet.

So the production of content is not as important as the development of efficient pathways through content (media and communications), and for a body to be ready to assess people who have been through those pathways or tracks like it.

For example: I am a teacher and I teach about Socially Constructed Media and Communications. I start the Wikipedia and Wikiversity/WIkieducator pages. I watch the Wikipedia page to see where it develops and extract links and networks from that. At the same time I am watching RSS feeds and tagging media and communication channels relevant to my topic. I use the Wikiversity or Wikieducator pages to build a pathway for people new to the field. Some people no lots already, others no little. They use my pathway planted out with media, activities and exercises in ways that suite them. I indesign activities that will ask people to produce something that can be used for evidence, and I say to people when you think you have a grasp on all this and have made it through my pathway, I - more than anyone, am in a position where I can assess your learning, offer you feedback, and possibly present you with a certificate/qualification that can be used in the following ways...

To me, the most important thing in that model is my currency in ALL the media and communication channels in my field, my ability to filter it all and express an effective pathway for people, and have my assessment methods as non obtrusive and partnered up with worthwhile credentials as possible...

26.2.2.34 34. Derek Keats - June 6th, 2008 at 7:28 am

Thanks Wayne and Richard, but I was thinking of a little more than slideshare, rather about being able to take content and make it remixable. I think that there is a lot of opportunity to automate the repurposing of various kinds of content, even when it is in 'compiled' format, perhaps more so than with software because content is perhaps easier to decompose.

regards, derek

26.2.2.35 35. Derek Keats - June 6th, 2008 at 7:39 am

Leigh in response to

> *A question that comes to mind when reading your paper.. why do we need open courseware even!? or OER for that matter? The practical truth is that people are learning via the internet regardless of its copyrights*

I would say that there are four reasons, probably a lot more:

1. Collaborative production is a valuable learning opportunity, and it is a powerful confidence booster to see what you have written or created used by someone else. Thus F/OER of the kind that interests me most are the ones used by students to remix and create something new.

2. Velocity. When the license does not permit remixing, it is a source of energy dissipation. However, when I see something good that I can simply reuse, I can move so much faster to produce what I wanted to do. For example, I am doing a chapter for the KEWL book on blogging and podcasting. There is a lot of stuff on both topics that I can use under BY-SA so I don't have to rewrite everything from 'pseudoscratch' .
3. When institutions collaborate to produce content, it enables them to enter into a form of co-opetition that is widely recognized as being beneficial event in the cuthroat world of business.
4. When there are no legal impediments to sharing, then novel uses are easier to achieve. For example, my animated tutorial could be captured and printed with text from wikipedia to make a tutorial on Wujibas that is printed and handed out to kids in schools throughout the Republic of Povertaria. My manuscript on the biology of left-handed fleas can be turned into an educational documentary for use in the department of fleaology in another institution.

Those are the practical reasons. Then there are the moral reasons, but let me stop on the practical for a change.

But if we only see F/OER as a means to create consumers, then sure, we don't need them. I would argue we probably don't need anything ,because if all we do is consume, then education is dead anyway.

d

26.2.2.36 36. christine geith S- June 6th, 2008 at 9:04 am

Leigh - my impression, in the U.S. anyway, is that institutions aren't quite there yet when it comes to acting as if content is pre-competitive space. I believe part of it is lack of experience unbundling content, teacher support, social support and assessment of learning outcomes. There are only a handful of institutions in the U.S. built on the bedrock of earning academic credit based primarily on assessment. But, I do agree with you that when distance died, 20 years ago, so did content - now free/open nails it - and more importantly, gives us the creative tools to learn through more authentic means.

It may be more useful to think of all of this from the learner's perspective as Derek and others have noted in this thread.

Your teacher scenario is terrific (and if it's OK with you, I'll use it at NUTN) what about a learner interested in socially constructed media and communication?

- Chris

26.2.2.37 37. Leigh Blackall - June 6th, 2008 at 7:12 pm

Hmm, logical argument. But - suppose for a moment that there is no difference between teachers and learners. As Derek point out, there is valuable learning opportunity in the process of co creation.. otherwise known as constructionism. So my question should have been:

> *A question that comes to mind when reading your paper.. why do we need open courseware even!? or OER for that matter? The practical truth is that people are cocreating/remixing/collaborating/communicating/learning via the internet regardless of its copyrights*

But this is a useless point of view in the context of business and institution where we have to be mindful of the economic and legal implications of such exchange. So, Derek's other points make sense for that context.

The thing that concerns me however, is that while we focus on cocreating/remixing/collaborating/communicating/learning in the OER/institutional/professional sense, that we may be unwittingly disengaging ourselves from what goes on outside of that context. We have to admit that FLOSS and similar inspired movements has its fare share of zealots and purists who will not accept engagement with anything but a free and open economy, and I think we should be always discussing that aspect of what we do.

I am noticing it already.. there is a type of educational developer out there that engages with just about anything.. Youtube, Slideshare, Wikipedia, Windows, Mac, Linux, Blip, Archive, GoogleGroups.. and there

are educational developers that only engage in Linux, WikimediaFoundation, OER, Free cultural works. I was the anything goes developer, but since hanging out with more extreme freedom fighters I feel that I have disengaged from the other and become consumed by the pure definition and appropriate practices. In so doing, I might be alienating myself from everyday people around me.. its a balancing act is what I'm trying to say...

26.2.2.38 38. Derek Keats - June 7th, 2008 at 4:48 am

Hi folks, apologies for not having made much of a contribution yesterday. I came down with a flu or something, and as I have a 29 hour journey ahead of me today, I spent much of it trying to rest and recuperate. Now I have to head off to the airport in a few minutes, and will check back in sometime on Sunday from Michigan.

But I wanted to pick up on the notion that Leigh raised about there being people who refuse to use any content that is not totally copyleft.

> *We have to admit that FLOSS and similar inspired movements has its fare share of zealots and purists who will not accept engagement with anything but a free and open economy*

While this is perhaps a common perception, I am not sure it is true or even could be true if people live on the same planet that I do. To live to those standards with respect to software, you would have to:

1. Not purchase any goods from a store unless you moved to Extramadura in Spain;
2. Never use a bank;
3. Not use a car or travel in a car;
4. Not use a cellular phone (thought that is perhaps partly changing);
5. Not listen to music in CD, DVD or MP3 format
6. Not use electricity

etc. etc.

But even the most zealous admit that there are times when you need to use a computer or CPU powered device where there is no Free Software then you can do so.

To be a copyleft zealot in the content arena, and to interact only with Free Content, you would have to:

1. Never read a magazine, newspaper or book
2. Avoid looking at billboards by the roadside
3. Not watch television or listen to radio
4. Never look at a painting or any other work of art

Clearly, there is room in the world for copyright and protected works. But the issue is not use, but REUSE. The fully copyrighted works are not reusable. You have to consume them as they are, whole, and while you may display them via embed tags on other sites, that does not make you a content developer any more than selling televisions makes you a TV producer.

So, to be effective as tools in a constructivist learning approach, the content has to permit REUSE, that is it should be decomposable, remixable, and distributable usable without the need to load the original source. It is this reusability that gives F/OER the edge.

Regards, derek

26.2.2.39 39. klynip - June 8th, 2008 at 11:35 am

While I don't think I have anything to add at this point, I do want to express my appreciation for it. It is helping to inform a current dialog at The University of Montana.

Ken: Glad to see Derek as a guest columnist here. Makes perfect sense. I read one of Derek's white papers about two years ago and have found occasion to reference the points therein on a number of occasions.

26.2.2.40 40. Patrick Masson - June 8th, 2008 at 1:14 pm

Just wanted to add a practical example:

Amal Rowezak of Alfred State uses open source communities, rather than text books, for her computer science courses. Rather than requiring a text, the students must participate in a open project. I will try and point her here for more information.

26.2.2.41 41. Derek Keats - June 8th, 2008 at 6:40 pm

Patrick, it would be good to have the URL for Amal's work. I am really keen to find good examples of reusability at the student level, since most of what is done in the F/OER space today still focuses on the professors. This from a bleary eyed scrag in Ann Arbor after 29 hours of travel.

26.2.2.42 42. Ken Udas - June 11th, 2008 at 6:02 am

Hello,

I just wanted to mention that Christine Geith and I facilitated a session at the NUTN (National University Telecommunications Network) annual meeting yesterday (Tuesday). We used a WikiEducator as our presentation medium and workspace, which is open for modification and development. During the past week Christine and I modified our presentation significantly to include information included this blog post and expand on it, so it refers significantly to the Education 3.0 model to illustrate the role of OER and the Freedom culture in the changing nature of education.

Feel free to check out the OER and Open Education at NUTN 2008 resource page in WikiEducator, modify it, add resources, etc. Christine and I would like your thoughts on the materials we used and suggestions for improvement.

We invited the folks who attended the session to access the wiki and modify the content, build on it, etc. We rendered the Education 3.0 table "Educational generations in higher education" from the The genesis and emergence of Education 3.0 in higher education and its potential for Africa[23] article in the wiki and invited folks to go in, add new characteristics (rows), and new descriptions of Education 1.0, 2.0, and 3.0. We also invited folks to join us in this blog and participate in dialog. So, if you have joined us from the NUTN meeting, Welcome and please feel free to post questions, make comments, etc. here too.

Cheers, Ken

26.2.2.43 43. Derek Keats - June 22nd, 2008 at 2:39 pm

Sorry Ken, I did not see this post of yours as an email (maybe too much spam in my mailbox), so I assumed all was quiet. I guess we will all kind of continue this stuff in our own spaces. I will keep an eye on the WikiEducator. Does it allow HTML code snippets? I have been talkjng to Wayne about a way to include the presentations from http://chameleon.uwc.ac.za[24] as resources in WikiEducator.

I will continue talking about Education 3.0 on my blog at http://www.dkeats.com[25] . I just posted some old tutorials on licenses. I am currently working on a little animation of how and why I went to University in 1972, two weeks after turning 17, as an illustration of Education 1.0. I will of course be available under BY-SA license as everything is in support of Free use of educational resources. I am also working on another paper on F/OER (Free / Open Eduacational Resources) that will be available in draft in about a week or so.

I thank everyone, lurkers and posters, for your contribution. Feel free to pop by my http://www.dkeats.com[26] site sometime an leave a note. I will keep this site on my blogroll.

All the best,

Derek

[23] http://www.firstmonday.org/issues/issue12_3/keats/index.html
[24] http://chameleon.uwc.ac.za/
[25] http://www.dkeats.com/
[26] http://www.dkeats.com/

26.2.2.44 44. jakeruston - July 27th, 2008 at 6:17 am

While I don't think I have anything to add at this point, I do want to express my appreciation for it. It is helping to inform a current dialog at The University of Montana.

Ken: Glad to see Derek as a guest columnist here. Makes perfect sense. I read one of Derek's white papers about two years ago and have found occassion to reference the points therein on a number of occasions.

Thanks,

Jake Ruston,

http://www.milofi.com[27] and http://www.findacourse.ie[28]

26.2.2.45 45. Paul - September 25th, 2008 at 4:23 am

Its evolution, a remarkable one if i may say the least. Internet and education, its a remarkable bond whose significance can be realized when we talk about having no resources but the internet and being able to have access to information of many libraries. Well that is just the simplest analogy that can be shown. Apparently with the online degree awarding bodies emerging on the internet not just the conventional art gained promotion but the unconventional ones were promoted like e.g.

http://www.schoolsgalore.com/categories/1/massage_therapy_schools.html[29]

although to a rapidly developing time un-conventionalism might not have boundaries yet it is the evolution of the man kind altogether that has brought up the science out of the art.

26.3 Summary[30]

"Evolution to Education 3.0," the 23rd installment of the Impact of Open Source Software Series, was posted on June 1, 2008, by Derek Keats. Derek is a marine biologist with strong interests in using technology to improve teaching-and-learning, to enable higher education to create Education 3.0, and to promote sustainable development. Derek's research interests include e-Collaboration and lessons for international collaboration from Free Software (open source) and related initiatives; next-generation e-learning systems and Education 3.0; Free and Open Source Software and Free/Open content in higher education. He has developed a number of initiatives in the fields of educational and environmental informatics, Free Software, Free and Open Resources of Education (FORE, often called OER) and has published around 80 research papers in biology and in the application of technology. Thanks Derek for a great posting!

In his posting, Derek starts with the assertion that:

> *Higher education institutions exist as a result of the need to aggregate resources that are scarce (professors, books, journals, laboratories).*

He then moves forward suggesting that a combination of advances in distributed and open educational resources and technologies have significantly reduced (or at least hold the promise of reducing) some of the problems of associated scarcity. So, where does that leave the University and higher education in general? Well, Derek points to Personal Learning Environments (PLE) and, connecting the dots, points us to some work that he and Philipp Schmidt have done on Education 3.0[31] , which is one potential future along a path of reduced scarcity through open educational resources, distributed educational technologies, and social networked learning. He introduced a few other related thoughts about the importance of inter-institutional networking, the recognition of prior-learning, and the notion/challenge of "quality assurance."

Finally, Derek asks us:

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[27] http://www.milofi.com/

[28] http://www.findacourse.ie/

[29] http://www.schoolsgalore.com/categories/1/massage_therapy_schools.html

[30] This content is available online at <http://cnx.org/content/m19882/1.1/>.

[31] http://www.firstmonday.org/issues/issue12_3/keats/index.html

If he is describing a desirable world? Is it a world that we will see in our lifetimes? Or is it the ranting of a digitally-disturbed, hyperlinked lunatic referring to himself)?

Apparently they are good questions, because they lead into a log of commenting and exchange. Upon reflection though... the last question was never answered!

26.3.1 Comments

There was certainly a lot flowing from Derek's posting. In fact, there is enough here, so I am a little reluctant to provide a "Summary" because it will likely become a transcript of the comments. That said, I do think, though, it is worth mentioning that the comments ran the gamut from:

- Review and accreditation of materials relative to quality assurance (institutional v. materials),
- The impact of licensing and license terms on OER,
- Convergence of technology and behavior of individuals,
- Factors that impact sustainability and speedy progress of OSS, OER, and Education 3.0,
- Informal and self-directed learning – reduction of barriers, knowledge credentialing, portability, and assessment of prior learning, and
- The ecology or OER, reuse, and sharing.

while also maintaining some nice internal flow.

Thanks again to Derek for his interesting and insightful post and responses. I also want to extend a big thank you to Pat Masson, Dave Cormier, Wayne Mackintosh, Leigh Blackall, Christine Geith, Richard Wyles, and Keith Lynip for adding to the post, and other folks who have been reading along. Thanks too for so many great links to additional resources!

I hope to start the Series up again in September, and am starting to actively solicit new contributors. If you have somebody that you would like to recommend, please do email me directly at keu10@psu.edu. If you have made recommendations before and I did not follow up, please make them again. I am sure that it was just a matter of being a little overloaded at the time. I appreciate all of your support with the Series. The schedule for the series can be found on WikiEducator[32] .

26.3.1.1 Comments on Summary

26.3.1.2 1. Patrick Masson - July 22nd, 2008 at 7:21 pm

Ken, Another great round, thoroughly enjoyed the posts and the comments–as always it seems as though everyone else in the world is doing way more interesting stuff an I. Pat

26.3.1.3 2. tapierce - October 28th, 2008 at 10:10 am

Definitely some great thoughts and some very deep questions. I do think you should continue on with the serives...

Mark

Educational Software

[32] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 27

Exploring new ways of being open (Martin Weller)

27.1 Introduction - Martin Weller[1]

I want to welcome Martin Weller and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Martin will be discussing the SocialLearn project, which is the Open University's attempt to create an open API-based social networking system for learning. He will look at some of the motivations behind the project, what it hopes to achieve and how the technology is being used as the medium through which the institution itself comes to understand the changes happening in society and in education as a result of digital technologies.

Figure 27.1: Martin Weller

Martin Weller serves as a Professor of Educational Technology at the Open University[2] in the UK. He chaired the OU's first major online course with 15,000 students, was the Virtual Learning Environment (VLE) Project Director and is now Director of the SocialLearn project. His interests are in elearning, web 2.0 and the implications of new technologies for higher education. He blogs at The Ed Techie[3] .

[1] This content is available online at <http://cnx.org/content/m19891/1.2/>.
[2] http://www.open.ac.uk/
[3] http://edtechie.net/

I have been following Martin's work for some time through reputation and through his many open blog contributions. I am very excited about having Martin contribute to the Impact series and look forward to some active participation and development of dialog. Martin's post is scheduled for October 15, 2008. Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

27.2 Exploring new ways of being open[4]

NOTE: Author - Martin Weller, "Exploring new ways of being open". Originally submitted October 14th, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

When the Open University[5] (OU) in the UK was founded in 1969, 'open' had a rather specific meaning in education. It meant open access, and this was realised through part time study and open entry. In choosing the term 'Open' the university's founders chose wisely as it is a term which has, if anything, gained in currency. When we think of openness in education now we probably think of open source software, open educational resources, open APIs, open journals, etc. In this post I want to highlight how the OU is embracing these different forms of openness, and to make the argument that it is doing so through technology projects. In this sense, openness is not just a technical or pedagogic decision even, but rather a fundamental mindset, and one which we need to continually reinterpret in the light of changing technology and society.

I will concentrate on the project I am currently directing, SocialLearn[6] , which aims to build a social network for learning. This project comes on the back of two other major OU ventures, namely the OU adoption of the open source platform Moodle as its learning management system, and the OU's Hewlett Foundation funded open educational resource initiative, OpenLearn[7] . My colleague Andy Lane will talk about the latter in detail in his post, which will be posted on this blog soon after mine. The adoption of Moodle[8] was significant for the OU for two main reasons: firstly, it signaled to the education community that we believed open source was a robust and sensible option; secondly, it gave out a strong message that the OU was still current and willing to take risks. In this sense it was as much a political decision as a technical one.

SocialLearn is the latest in these types of initiatives. Its aim is to develop a social network for learners, which is based around an open API, thus allowing any application to write to it. In this sense it could be one form of the almost mythical 'eduglu[9] ' that binds together a range of third party applications to create a Personal Learning Environment. What is perhaps more intriguing, though, is what will happen when we can mine the social graph data to help structure a learner's experience. When a learner creates a goal, similar goals, relevant resources, and potential third party offerings (eg mentorship, tuition, formal courses) can all be assembled. The system, in effect, can do much of the filtering process that is currently performed by an educator (although it does not seek to provide the support or expertise of the educator, filtering is only one function). The potential of this is that the currently top-down, restricted curriculum is democratised. People learn about whatever is of interest to them - in effect we have an open curriculum.

Currently the project is under development, with a beta launch planned for early 2009. As well as the technical development, which is being informed by pedagogic theory, the project is also developing new business models, on the assumption that truly open education will need to find sustainable models, if the conventional funding from governments does not apply. The project is seeking to understand how socially data driven learning can be used to support alumni, informal (or leisure) learners, and those seeking career development. The current support and accreditation practices we have in higher education will need to be rethought to meet the needs of these groups in society at large and SocialLearn can be viewed as the OU's means of understanding, and influencing, these changes.

[4] This content is available online at <http://cnx.org/content/m19892/1.2/>.
[5] http://www.open.ac.uk/
[6] http://www.open.ac.uk/blogs/sociallearn/index.php
[7] http://openlearn.open.ac.uk/
[8] http://moodle.org/
[9] http://www.darcynorman.net/2008/02/16/on-eduglu-part-1-background/

In undertaking all three of these projects the OU is seeking to remain relevant in a rapidly changing society. The projects are both a means of developing a new profile, but also of understanding how learners behave and what their needs are in a digital society. But they can also be seen as a means of reinterpreting what open means - from Moodle we have come to understand how to operate in a large open source community and from OpenLearn we have investigated what an open approach to content means, both for the institution and learners. From SocialLearn we hope to understand what openness means in terms of subject area, technology and business models.

I've presented these endeavours as a positive action, but they are not without risks or significant issues. Is a university the best place to create a social network site? Does this type of activity lead to the commercialisation of education, or is it a response to it? Can learners really learn effectively in this manner? Does it mean learners are challenged less during the learning process?

In thinking about the issues, my general view is that higher education needs to adapt to remain relevant to a society which is changing rapidly. I want to avoid accusations of technological determinism by suggesting that digital technologies themselves are changing society, but they are facilitating new types of behaviour and communication. As Clay Shirky says in Here Comes Everybody,[10] 'when we change the way we communicate, we change society.' But, I do have a concern that if we begin to disaggregate higher education, we will lose some of the subtle benefits the existing model provides to learners, educators and society itself. Although I feel that the OU, and other educators around the world are right to pursue these new models, occasionally the words of British singer/songwriter Billy Bragg come to mind: "The temptation to take the precious things we have apart, to see how they work, must be resisted, for they never fit together again."

27.2.1 Comments

27.2.1.1 1. plefrere - October 15th, 2008 at 7:32 am

"When a learner creates a goal, similar goals, relevant resources, and potential third party offerings (eg mentorship, tuition, formal courses) can all be assembled.". A crucial question is who controls the system doing the assembling. If a university is at the center of the system, that looks like business as usual.

Another approach is to put students at the center, able to decide whether and how to make use of a particular institution's offers and services, as part of a mix of personalized services, based on open standards, that can include P2P and informal learning, and can augment today's open educational resources. That approach is new. It is called a Responsive Open Learning Environment. Responsive means personalization. Open includes all the things mentioned in the post. From 2009, expect to read a lot, across the world, about Responsive Open Learning Environments.

By using a ROLE, people can learn about whatever is of interest to them. And source each element of their learning, to hit their personal criteria (eg "I want to cut my education costs by 50% yet obtain internationally recognized and highly rated qualifications, whilst studying in ways that I enjoy, at times to suit me, with people I will like; find me the best mix of mentoring, tuition, formal courses, informal learning, social networks and accreditation"). It will be interesting to see how open business models evolve to make use of ROLE features.

27.2.1.2 2. Ken Udas - October 16th, 2008 at 8:16 am

It would seem to me that the notions around disaggregating higher education are really providing different opportunities for engagement, and are not really about taking something valuable or precious apart. I am wondering though if I am missing something. Would anybody be willing to expand a bit on the relationship between the objectives of SocialLearn, specifically and Responsive Open Learning Environment (ROLE) more generally, disaggregation of higher education, and what might be seen as a threat to the traditional western university? That is, what might we see change?

[10] http://www.herecomeseverybody.org/

27.2.1.3 3. plefrere - October 16th, 2008 at 8:40 am

I can't speak for SocialLearn itself. But more generally... it's likely that social-learning systems (whether SocialLearn itself or ROLEs) will include low-cost/no-cost seamless access to "as if we are in the same room" virtual-participation systems, allowing students to drop into face-to-face seminars and lectures (virtual presence). This makes possible a return to the valued ways of the original western universities (eg Bologna, Oxford, Cambridge, Sorbonne), which allowed students to move freely between each university, learning from a mix of the best scholars. Much as Steve Jobs describes in his famous Stanford commencement address (it's on iTunes). That "free-range" or "drop-in" or "open access" approach to teaching and learning is aided by disaggregation. But if universities move to working in this way, they must be able to track who is using which services, and develop a business model that fits a disaggregated world. Likewise, free-range students may need support in engaging with a "community of scholars". So a ROLE will necessarily provide a wide choice of open services to help them to develop and maintain their online identity, to seek guidance, to learn to cooperate / share / become members of a community, and to build trust.

27.2.1.4 4. andreasmeiszner - October 17th, 2008 at 11:35 am

Hearing words like API and open standards, though important, in combination with words like "new" and in the context of the soon to come educational killer application makes me always being scarred that we end up with yet another tool / toy.

We have myriads of good cases at the web that show that vivid learning environments and communities are successfully working by using simple yet mature technologies, meanwhile all of our attempts within traditional educational settings haven't taken up as we hoped.

Learning is to a great extent a silent process and silence is difficult to be displayed and shared at the web. But the same web also show us how this silence can be made visible i.e. by people either actively discussing and developing a joint goal, or by sharing their thoughts within open unstructured debates, or by posting questions and receiving answers. Bringing content and tools to people is certainly helpful, but is not the most important thing to break silence, to scratch an itch, or to stimulate participation and engagement.

Additionally and talking about "open learning environments", at least if it is to be "open", also means that words like "students" become vague so we need to be clear to whom are we actually referring and for whom are we doing all of this: our students (for whom we bear the responsibility), fellow institutions' students (for whom someone else bears the responsibility) or free learner that just scratch an itch?

Within our traditional educational systems all our attempts going open or taking advantage of collective knowledge are somehow condemned to fail and this might be something to work on first. Is this the reason we keep on focusing on the technology side and develop large numbers of "yet another thing", though we learned over the past decade that others do a much better job on this "out at the web"?

This leads me to 2 questions:

1. What would we actually do with e.g. a ROLE once we created the ultimate "open" socio-technological system? Could we use it within our current educational system? Or would already the law prohibit us doing so to protect our students? More importantly, could we even test and pilot it during the development time with our students? Or with the students from others? On a large scale, to make sure it would be accepted and functions e.g. as a p2p system? How "close to the market" would such a system be after 4 years development? Seeing that this is a large scale 6.6 Mio Euros project I assume that it should be used successfully after market introduction by millions of people, having been tested over a year or to with thousands and experimented with community building and how they impact the system, but how could this work being applied in traditional educational systems?
2. Why not using existing technologies and focusing on the organizational side, to see what's working and what not, and "let the system grow in an evolutionary way" by responding to actually identified needs, bugs and opportunities?

We can see at the web that humans leverage information, act as information broker, provide support and help each other, create and remix things, tag them, question them, improve them, and ultimately do this for a particular reason be it learning, work or fun... And IMO they are doing a fairly good job on this.

A simple bulletin board can be turned into a vivid learning community, as long as there is a motivation and reason for a diverse group to engage at it.

We have already for quite some years all those free tools at hand, but yet we haven't managed to apply them in the right way. If we are to "go open", and not just use "open" as the trendy word it became, we might need to understand first how the web works and what's proven to work out well and to create similar conditions within an educational setting and than keep on going to improve and enhance it step by step.

But you might have taken this all into consideration and it is just me being scared by the wording or the way I interpret them, which gives me the idea that the focus is once again on new technologies.

Best, Andreas

27.2.1.5 5. davidmcquillan - October 20th, 2008 at 9:59 pm

Hi all,

I'm interested to know how open SocialLearn is.

Will it be available for the students of other institutions to use?

27.2.1.6 6. Martin Weller - October 21st, 2008 at 1:48 am

@Ken - I think disaggregation may come in many forms. You can view current higher education as a convenience bundle: it puts together content (lectures, selected books/articles), support, assessment, and a cohort to study with. That's quite a powerful bundle and worth paying for. But elements of it begin to fray - content for example can be easily found and assembled (but the sequencing is still valuable), support could be paid for as you need it (PhD students offering it online for $20 an hour), and a cohort could be assembled on the fly (think the neighborhood in LastFM). Assessment, in a form that is recognised by society, is probably the key component holding these together - society still knows what a degree is. But if that became unbundled you could see how the other elements might be picked off - both by businesses, but also by technology. I'm not proposing this as desirable, just a possibility now in a way that it wasn't before.

@Andreas - you make an interesting point, openness is a state of mind, not a shiny new technology. But I'd argue that the technology is partly how you realise that state of mind. In the case of sociallearn the aim is to allow you to integrate these simple existing technologies in a learning context. Also, as you suggest, there are elements of the business and/or pedagogic model that are currently not realised, so the project is simultaneously trying to implement these/

@david - the idea is that it's open to anyone to use, but also that other institutions may take and install a customised version.

27.2.1.7 7. Ken Udas - October 21st, 2008 at 9:16 am

I have been giving some significant thought to the idea of independent learners "scratching an itch," as Andreas describes it, the notion of disaggregation, and openness as a pedagogical intent. My thoughts have been further stimulated by an email I received from my daughter last week. She is 14 years old, is living in a Scandinavian country and has shown aptitude and interest in science. She has identified an intellectual itch to take upon herself "independent study" of biology and turned to the MIT Open Courseware site for some content and some structure for a course of study.

As her birthday is coming up, she decided to ask that I make a birthday gift of the recommended textbook for the open biology course. Unfortunately the textbook was not open (perhaps another discussion). I, of course, have happy purchased, and will forward the physical text to her.

So, she will have a "course" that has been designed with the full complement of objectives, learning outcomes, assessments, etc. providing some structure to her learning. She will also have some content in the form of the online course and the textbook. What else though might she need to make the best use of her

efforts while engaging in self-study and improvement? What would she have received if she were doing this within the context of a traditional learning environment (university)? What if she wants to formally apply her independent learning to a University sanctioned curriculum in the future? How can she access those things that she finds valuable relative to her personal development aspirations?

Off the top of my head, here are some of the things she might get if she were studying in a traditional manner at a university:

- An assigned professor/tutor (facilitation and support)
- A peer group (formal and informal social learning opportunities)
- Assigned credit for demonstrated knowledge (external motivator, recognition and portability learning, etc.)
- Student services/support (tutoring, library & research services, etc.)

I would assume that all of these could be very valuable. So, as an independent learner and user of open courseware, how might she access these valuable services? Is SocialLearn and ROLE intended to support independent (life long) learners like my daughter (who I am sure will study at some time at a university) or is it principally about opening opportunities for learners who decided to study at a university?

So many questions... my last one is:

Can we disaggregate the university for independent learners, but not fragment the experience?

27.2.1.8 8. davidmcquillan - October 21st, 2008 at 3:48 pm

Thanks for that Martin.

I'd be interested to test-drive the environment, as I'm sure would some of my collegues here at Otago Polytechnic, New Zealand. Could you please let me know when it's available? david AT tekotago.ac.nz

Cheers

27.2.1.9 9. Summary: Exploring new ways of being open | Terra Incognita - A Penn State World Campus Blog - November 4th, 2008 at 9:40 am

[...] "Exploring new ways of being open," the 24th installment of the Impact of Open Source Software Series, was posted on October 14, 2008, by Martin Weller. Martin Weller serves as Professor of Educational Technology at the Open University in the UK. He chaired the OU's first major online course with 15,000 students, was the VLE Project Director and is now Director of the SocialLearn project. His interests are in elearning, web 2.0 and the implications of new technologies for higher education. He blogs at edtechie.net. Thanks, Martin, for a great posting! [...]

27.2.1.10 10. » Para qué es la Web: Más docentes deberían hacer esto...- OLDaily octubre 15/08 El Blog Boyacense: El sitio de referencia de tod@s l@s boyacenses - November 12th, 2008 at 4:08 am

[...] Bueno si se trata de criterios personales ¿no se deberían llamar "entornos personales de aprendizaje"? [L][C] [...]

27.2.1.11 11. Systems for Supportive Open Teaching | Terra Incognita - A Penn State World Campus Blog - November 26th, 2008 at 4:26 am

[...] over lately. They also follow on well from the recent contributions from Martin Weller around exploring new ways of being open and Cole Camplese on embedding student [...]

27.2.1.12 12. Summary: Systems for Supportive Open Teaching | Terra Incognita - A Penn State World Campus Blog - December 30th, 2008 at 7:19 pm

[...] again, special thanks to our recent contributors, Martin Weller, Cole Camplese, and Andy Lane. I will ask a few more guests to participate in the OER and OSS [...]

27.3 Summary[11]

"Exploring new ways of being open," the 24th installment of the Impact of Open Source Software Series, was posted on October 14, 2008, by Martin Weller. Martin Weller serves as Professor of Educational Technology at the Open University in the UK. He chaired the OU's first major online course with 15,000 students, was the VLE Project Director and is now Director of the SocialLearn project. His interests are in elearning, web 2.0 and the implications of new technologies for higher education. He blogs at edtechie.net[12] . Thanks, Martin, for a great posting!

Martin starts by framing the term "Open" as it is being applied in education and how the Open University UK is addressing the openness agenda. He points to three projects, at the OU including their adoption of Moodle, the OpenLearn project, and Social Learn, which Martin is directing. Martin first indicates that SocialLearn will serve not only as a way to loosely couple applications thorough an open API to form a Personal Learning Environment (PLE), but also as a platform with the potential for supporting learner derived open curriculum. SocialLearn has the potential to sit significantly enough outside of traditional educational infrastructure and pedagogy, to serve as one of the ways that the OU can influence and accommodate the changing needs and economic models of higher education.

Finally, Martin points to the phenomena of disaggregation in higher education, leaving out there the question of its prudence.

27.3.1 Comments

The dominant theme of the comments had to do with the potential of open learning and the impact of projects like SocialLearn. Responsive Online Learning Environments (ROLE) was introduced, which support not only personal learning, but provide for inter-institutional flexibility, enhancing access. Our fixation with technology was also raised along with questions about what we have done (and not done) with what we already have available and the organizational challenges of openness that we have not yet embraced.

Thanks again to Martin for his interesting and insightful post and responses. I also want to extend a big thank you to plefrere, Andreas Meiszner, and David Mcquillan for adding to the post, and other folks who have been reading along. On November 5th, Cole Camplese will be making a post to the Series. Cole serves as the Director of Education Technology Services at the Pennsylvania State University, and in his post he will investigate the changing role of the web as a platform and he will ask some critical questions about our own future. I have had the opportunity now to work in the same organization with Cole for over two years and always find his conversation, line of questions, and various shenanigans, stimulating. I am looking forward to what will surly be a thought provoking and entertaining post!

The schedule for the series can be found on WikiEducator[13] .

27.3.2 Comments on Summary

27.3.2.1 1. GMC - November 25th, 2008 at 2:38 am

I really am looking forward to seeing where the Open Learning concept and technology take us in years to come.

[11] This content is available online at <http://cnx.org/content/m19894/1.1/>.
[12] http://nogoodreason.typepad.co.uk/
[13] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

27.3.2.2 2. myclass - February 5th, 2009 at 5:08 pm

I like the Open Source World. Would you consider Google Apps open source?
I have also used OpenOffice.
Richmond Virginia

Chapter 28

Embedding Student Expectations (Cole Camplese)

28.1 Introduction - Cole Camplese[1]

I want to welcome Cole and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Cole will be looking at how the Web is finally starting to fulfill its promise as a platform to support and extend conversations. Faculty and students are engaging in the use of social media to participate in unprecedented ways — creating, mashing, and embedding content from all over the Internet is the becoming the new norm. What should we be doing inside the academy to understand and embrace this new form of literacy? In this post we'll attempt to investigate the changing role of the web as a platform and ask some critical questions about our own future.

Figure 28.1: Cole Camplese

Cole W. Camplese serves as the Director of Education Technology Services[2] at the Pennsylvania State University. As Director, it is his responsibility to oversee University-wide initiatives with a focus on impacting teaching and learning with technology. He guides teams in the appropriate uses of technologies in the contexts

[1] This content is available online at <http://cnx.org/content/m19890/1.2/>.
[2] http://ets.tlt.psu.edu/

of teaching and learning. His primary area of focus is the integration of emerging technologies into learning spaces. At Penn State, the overwhelming challenge is providing scalable solutions that the nearly 90,000 students and 5,000 faculty can successfully use to enhance their teaching and learning environments.

Camplese has recently worked to integrate several new emerging technologies into curricular activities at Penn State to support digital expression. He and his team have lead the creation of the Blogs at Penn State[3] , Podcasts at Penn State[4] , and the Digital Commons[5] . Camplese oversees the annual Symposium for Teaching and Learning with Technology[6] , several community development events, and numerous other initiatives designed to support the adoption of technology for teaching and learning.

I have now had the opportunity to work directly with Cole for longer than 2 years at Penn State, and have always found it enjoyable. I am very excited about having Cole contribute to the Impact series and look forward to some active participation and development of dialog. Cole's post is scheduled for November 5, 2008. Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

28.2 Embedding Student Expectations [7]

NOTE: Author - Cole Camplese, "Embedding Student Expectations". Originally submitted November 5th, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

I hope that you'll bear with me as I bring a slightly different approach to the posts here at Terra Incognita. My interests and passions fall directly in the argument for openness and transparency across all forms of teaching and learning. I am not going to write a case for opening learning or open courseware, but I will attempt to engage you in a discussion related to our overall willingness to change some of our fundamental models to empower those around us to participate.

I am curious of how we see the emergence of remix culture and where it fits into our domain — and I am really anxious to know if these notions resonate with the readers here. So if my post misses the mark I apologize in advance, but with that ...

I have been making the argument lately that what is beginning to happen (in a more general sense) is that the web is finally starting to fulfill its promise as a platform to support and extend conversations. I know this isn't news to those of us who have been ultra-connected for the last 10 years, but its emergence recently to a larger audience is very interesting in several ways.

The ability to instantly create and share is shattering the notions many institutions have built their teaching and learning models on. The emergence of the social web has jump started discussions around open learning, engaged communities of practice, Creative Commons, and so much more. This focus is bringing into question our reliance on closed tools to support teaching and learning practice. Faculty and students alike are interested in participating easily inside the academy just like they can outside in a place like Facebook. It is a frustrating world we live in and I am not sure we are paying close enough attention.

Lately I have been spending a lot of time talking to people in the newspaper industry to help them understand our students and what they mean to their continuously downward trending subscription rates. One thing is certain, they are afraid. They are obviously fighting for their lives in an industry where there seems to be few answers. I talk with them about how important it is to embrace new practices and models, to rethink the role of the traditional publication, and to look at trends across the social web that can be superimposed on their space. The announcement that The Christian Science Monitor will go to a totally online newspaper has brought new focus on the inevitable need to rethink existing practice and embrace a more open model of publication. Clearly circulation is plummeting for all sorts of reasons, but the short sighted lack of acceptance of the social web is a major factor in my mind.

[3] http://blogs.psu.edu/
[4] http://podcasts.psu.edu/
[5] http://digitalcommons.psu.edu/
[6] http://symposium.tlt.psu.edu/
[7] This content is available online at <http://cnx.org/content/m19888/1.3/>.

At the same time, other media industries are actually starting to get it. For the longest time many of them have either ignored the power of the web or dismissed it as the land of the criminal. It appears that some of them are starting to see that there is huge potential for letting people participate. The lessons from a space like youtube.com[8] has not only transformed the ease with which one can publish online, it has totally shattered the notions of presence, conversation, and ownership. The fact that I can easily, with a couple of clicks, publish video with a global audience that can be instantly mashed up, commented on, and embedded in any website on the planet is pretty staggering. The fact that big media has ignored this opportunity is, to me, even more astonishing.

My problem with this is that I believe higher education is further behind accepting these simple facts.

The best example of big media getting it I can point to is the emergence of hulu.com[9] as a real player in the online TV distribution world. Not only can I do almost all of my TV watching online for free, but I am now able to do something that I never thought I'd see from the likes of NBC — embed real TV content on my own site legally. Not only do they give you the simplicity of the embed tags, but they even let one embed custom versions of the content. If I only want to point to 30 seconds of a Saturday Night Live piece, I can do that. With this simple affordance, the future of personalized media just took another step forward. Where are the tools for education that take advantage and promote these ideas?

Imagine what that does to student expectations? If a student can control NBC, why in their mind can't a faculty member respond to email on her terms? The future is happening right in front of us. I think it creates some interesting questions for our course and learning management systems, our policies, and our responsibility to promote open access to content. With the rise of blogs, with easily embedable media, and the explosion of point and click user-generated content what should the new tools look like for teaching and learning?

I have, for the most part, abandoned the notion of the walled garden as the assignment dumping ground via CMS drop boxes and have instead fully embraced the concepts of student centered creation. As we attempt to drive more students towards portfolio thinking via open platforms, what will it look like to turn an assignment in? Should we be rethinking a model built around aggregation that allows content to be "owned" by the creator and more easily shared to the faculty and the learning community? What does it mean for life long learning and an ability to connect with a broad community? How is moving towards a distributed set of resources that are easily reused going to challenge our control over curriculum? These are just some of the questions I am asking my administration and staff. People wonder if the print media folks are listening ... I am more concerned if we are paying attention as well.

I'd love to hear thoughts.

28.2.1 Comments

28.2.1.1 1. pwhitfield - November 6th, 2008 at 7:45 am

I'm delivering a 'Sound for media' module at an HE institution in the UK and I'm using a ning network (albiet set to private) for all portfolio development, discussions and communication, then a wikispaces site for resources. The students choose there own platform for their final portfolio spaces, but MS word and CDs are banned! I'm free at last! There are just so many benefits and I can't see any reason to go back to paper or even a vle.

28.2.1.2 2. TLT CoffeeRead: Embedding Student Expectations, by Cole Camplese : Education Technology Services - November 6th, 2008 at 8:10 am

[...] Embedding Student Expectations [...]

[8] http://www.youtube.com/
[9] http://hulu.com/

28.2.1.3 3. drs18 - November 6th, 2008 at 8:40 am

Powerful insight and stimulating questions. I'd love to see the ideas of portfolio thinking and content aggregation coupled with life long learning, distributed resources, and a broad community used to model learning that's not technology or media focused. What do the changes in learning, communication, and resource management mean to a course in archaeology? or mechanical engineering? Will any model we create apply across the university's list of courses? I have no idea, of course; there are certainly aspects that will. I wonder what the impact change will have on which careers students value?

28.2.1.4 4. pbach - November 6th, 2008 at 8:59 am

No doubt the post makes insightful claims. My first concern is that overtaxed professors, especially ones on tenure-track, may not have time to rethink the old school ways of interacting with students and designing their courses. If change is on the horizon, it's going to be a slow one. In a college where both students and professors are skilled in web 2.0 tech, integrating new web media into their curriculum is easier because technology is part of the program. But in other faculties, take English, for example, both students and professors may not be as technically literate. Yet, although students may be comfortable using social networking sites and youtube, senior professors are probably not. Also, junior professors, even if they are versed in web 2.0 technologies, may not be recognized by the department for bringing new media into the curriculum. Junior professors spend their time on things that will get them tenure and if rethinking a course using new media does not reward them for tenure, at least somewhere along the line, then they are less likely to do it. However, I could see integrating new learning through web 2.0 reflecting back positively on teaching evaluations, and that would count for tenure.

What I like about the possibilities of web 2.0 and new media is the ability for students to go find things that interest them and synthesize their learning through creativity.

28.2.1.5 5. aprilsheninger - November 6th, 2008 at 9:47 am

It is an amazing time that we live in and I agree that the future is now. I have been thinking about education a lot lately, but not necessarily only college level instruction. I was talking to a friend yesterday about the struggles that her child is having in school because the curriculum that is taught in the local school district is so inflexible, closed and limited. He has a different learning style than the curriculum allows for and a learning disorder on top of that. He's falling behind and the teacher's only recourse is to hold him in from recess to try to catch him up. His mom is beside herself because he needs physical activity to be able to concentrate better as part of his learning disability. She was complaining about "No Child Left Behind" and asking me what our new President's view on it was. I told her what I thought it is was, but I don't want to get into politics here. So what does this have to do with the discussion?

Will children progressing through elementary, middle and high schools with such strict and intellectually limiting curricula be prepared for the types of activities that Cole described? If we could somehow begin embedding student expectations earlier and develop curricula for k-12 with more modern expectations and better standards, I think we can get there. Of course this is more of a talk about education reform that open education, but might they not converge at some point or have they already begun to?

I must admit that one of my first thoughts was what "pbach" said about faculty. I was thinking more along the lines of how a university would train faculty to be able to assess assignments and keep up with the many platforms that students might choose if the faculty member isn't well versed in those technologies. I wondered about what a faculty development program might look like and whether something like it would gain momentum. I also wondered what it might take to get our administration fired up about truly student centered learning like what Cole has described. Results that this type of learning works and that student thrive in an environment where they get to take control of their learning would be a start. Maybe then tenure will be given to faculty based on their positive impact on students instead of how many journal articles or book chapters they publish in a year. With so many of them going online and so many people self-publishing, I think the whole structure needs to be looked at to keep up with the future.

28.2.1.6 6. brettbixler - November 6th, 2008 at 1:32 pm

There are other forces at work here we need to consider.

First, there are shrinking budgets. These lead to a search for efficiencies, but can result in a decrease in quality. That's where educational technologists need to step in and make things work well.

Second, the pace of change is ever increasing. Building courses with static activities was OK 10 years ago, but today they just don't hold up. Experiences quickly become artificial and don't transfer to the real world.

Also, there is an increased dissatisfaction with the quality of the higher ed experience. This is coming from students and business and industry folks who hire college grads.

We have to build not educational experiences, but places where sound ed experiences can take place, where learning activities can bloom spontaneously and those involved can reflect upon them, add to the next round, and help continuously build the next set of activities - a Garden of Knowledge if you will.

28.2.1.7 7. New Publishing with the Embed Cole Camplese: Learning & Innovation - November 6th, 2008 at 4:08 pm

[...] would really appreciate it if you took the time to bounce over to read the post and leave a comment for us to chew on and discuss. Besides, if you are interested in open content [...]

28.2.1.8 8. cwc5 - November 8th, 2008 at 11:09 am

I completely understand the notion that a certain percentage of faculty will be afraid to participate, but that isn't my core argument. I'm not even saying that students today have new expectations for the use of technology in teaching and learning. We know they do and I think, to a degree, faculty know this and have made huge strides in the use of technology in their classrooms in the recent past. What I am really wondering is if the shifting awareness of big media to allow us to legally reuse their content will cause shifts in the environments we currently take advantage of in the academy. It just seems we are a bit like the newspaper industry — waiting for someone to get that we don't really need to change. That isn't going to happen. Time moves forward.

I am wondering how this will play into the emerging notion of personalized learning environments? If we are concerned that faculty will refuse to keep up (which I disagree with), then how do we work with students to take greater responsibility in their life long scholarship? What do these types of technological and social advances mean to an individual students ability to forge meaning from various content sources, connect classroom activities to external open courseware, and how do they form new relationships via social networks that help support them? These are the new questions associated with learning in my mind. How will openness (and the increasing willingness of content providers to participate) fundamentally shift how we stay connected to our own intellectual development?

28.2.1.9 9. drs18 - November 8th, 2008 at 12:09 pm

I think that any student motivated enough to seek control of their life long scholarship, may, with these types of technological and social advances, no longer see value added in university attendance if the university stays the way it is. Where once concerned faculty could suggest a course, a club, or a personal contact, those same opportunities are becoming global and exist with or without the university. There is no guidance, though; no plan, no assessment, no oversight. Are you thinking virtual mentors? A student prepared course of study with suggested routes of social participation? I'm just guessing what the scenario would be, but it sounds like the sort of university that I might attend.

28.2.1.10 10. Ken - November 8th, 2008 at 12:10 pm

Such a smart post and so many smart comments and good questions. I feel funny even thinking about adding more questions. So, I won't. Instead I will tell you about what I am thinking.

There is real potential for disaggregation of the traditional bundle of services and value-adds that institutions of higher education have offered. In fact, I do not think that it is too far off. Although the trend is perhaps made more obvious when considering non-traditional (adult and distance learners) than those who decided to spend a few years on physical "destination campuses," it is obvious (based on this post) that our typical use of technology and effective use of community developed and applied knowledge is not where it might be. That is, many of us feel as if we are not meeting our potential, and perhaps many learners would agree with us.

It is my feeling that the Academy (faculty and administration) is having trouble understanding its role in OpenEducation and is perhaps being less than embracing, not because the advantages are not obvious, but because the threats are. This being the case, some of the real innovation is being lead by academics (faculty and administrators) operating outside of the academy:

- FlatWorld Knowledge: http://www.flatworldknowledge.com[10]
- P2PU: http://www.peer2peeruniversity.org[11]
- WikiEducator: http://www.wikieducator.org[12]
- Etc...

with additional activities and examples from other knowledge and information intensive sectors like publishing and broadcasting.

Thankfully I believe that much of this activity will be integrated into the Academic eventually, and that these activities are part of a catalytic process that consumes and nourishes all of the great work being done around "Open Education" (FLOSS, OER, OCW, Social Technologies, Web 2.0, Education 3.0, Commons Based Peer Production, Agile methods, open design patterns, open technology standards, open content licensing, etc...). My only question is how quickly will particular institutions embrace and contribute to the OpenEducation agenda. It looks to me that some are quicker than others. The Open University, UK seems pretty on to it, and based on Terry Anderson's keynote at Sloan-C this past Wednesday, so does Athabasca.

28.2.1.11 11. cwc5 - November 8th, 2008 at 2:32 pm

One thing I find interesting is that many people see a real conflict between good teaching and the tenure process. The best teaching is the product of good scholarship — in other words the very things we look down at (research and publication based reward) are what ultimately lead to masterful teachers. I'd love for us to get to the point where we as learning designers and administrators stop saying that we can do our jobs better when they reinvent the tenure process. I've heard a colleague of mine say on more than one occasion that his research is his teaching. Our ability to research and share is what drives the advancements in our classrooms.

With that said, I think there are issues with the adoption of technology in an appropriate sense for teaching. This isn't a problem with the tenure system as much as it is an issue with the reality of time. All of us are squeezed from every direction and taking advantage of emerging trends takes time to learn and feel comfortable with. We need to work harder to make the case for greater adoption, continue to tear down walls between faculty and staff, work harder to make our services easier to use, and perhaps rethink how we do our jobs to support innovative teaching practice.

My friends in the College of Education are building quite the ecosystem to drive new teaching practice into the K-12 environment. It is the work of faculty and administrators (along with help from the learning design community) who will provide the bottom up push to make change real. The students hitting our shores in the next few years will have little patience for out dated practice, so what will we do to address it? I think conversations like this need to push more involvement across our campuses and force us to ask serious questions of each other.

If drs18 is right, that self-motivated students will find little value in coming to our campus, then we have some serious soul searching to do!

[10] http://www.flatworldknowledge.com/
[11] http://www.peer2peeruniversity.org/
[12] http://www.wikieducator.org/

28.2.1.12 12. brettbixler - November 9th, 2008 at 12:05 pm

I too would love to see teaching, scholarship, research, etc. all together as one big happy family in the tenure process - but they aren't. Building technological infrastructures to facilitate teaching and learning won't help. A MAJOR culture shift is needed here that has to come from bottom up, top down, and sideways (influences from outside at all levels). Until that happens, we can't just blithely assume that placing technology in front of faculty is enough. We can't assume that offering training on the use of these tools is enough. Making adoption easier is not enough.

I can't tell you how many tenured faculty I've talked to that steer new faculty away from from "experimenting with technology" because it will harm or kill their tenure process at PSU. Cole mentions time as the deciding factor here. That is part of the issue, but here's another - We end up with only a few faculty that make it through P&T without becoming so vulcanized by the process they are willing to try new things, or with instructors not on the P&T path willing to try new things. We lose many brilliant minds to P&T, IMO.

While I can see a bottom up and sideways movement happening at PSU, I don't see a top down approach to change in P&T ever happening unless tremendous pressure is exerted on administration. They too are vulcanized in the way things are. Some give lip service to the need for change, but that's all it is.

So what to do? Maybe we need a black ops to bring in new administration that believes in this change in P&T. Maybe we need to slowing suffuse the existing administration(s) with those that "get it." Sounds radical, I know. Maybe (and more likely) another major university will move in this direction and PSU will follow.

28.2.1.13 13. pzb4 - November 9th, 2008 at 1:15 pm

What will happen to students' e-Portfolios as they graduate? Will the usual 6 month and it's gone policy still be in place, or do we allow students' portfolios to become alumni portfolios of life-long learning?

28.2.1.14 14. Andrea Gregg - November 10th, 2008 at 6:21 pm

I am a newcomer to the OER conversation so apologies if I'm addressing elementary issues or conflating some ideas incorrectly.

Cole, in your post you stated that "Lately I have been spending a lot of time talking to people in the newspaper industry to help them understand our students and what they mean to their continuously downward trending subscription rates."

My question is, are we re-defining how our economy currently functions in terms of what is sold and paid for? E.g. Are newspapers going to try as make comparable money in an online model to combat the downward subscription trend? Is the idea with Open Educational Resources parallel to a notion of Free Educational Resources? And, if so, how do we (as people employed in large part because students pay for an education) continue to make money?

I'm not arguing for or against anything here. It's just a question that's occurs to me whenever OER issues are discussed. And, like Ken, I was intrigued by Terry Anderson's Sloan keynote.

28.2.1.15 15. cwc5 - November 11th, 2008 at 9:10 am

Andrea . . . good question. My comparison of the newspaper world (old media) and OER was primarily based on lack of vision of foresight and not necessarily business models. That being said, I think you will see old media start to get the idea that open may indeed be better — if they can drive traffic (and measure) through their pages. As an example, the New York Times released an interesting new tool as part of their online presence called, Time People. It is essentially a social network built into the paper that allows people to follow other readers and have recommendations dropped into their profile for reading later. I see it as a step towards attempting to keep readers at the site (and for driving people there). If I am reading headlines via RSS I am giving the ads on the pages less importance, but if I am at the site, digging through recommended articles then I am increasing my click through.

I guess the same could be said of open educational resources — that the more eyes that travel the content, the greater the likelihood of having someone, who otherwise wouldn't have, decide to take the course for a fee. I'm not sure if that is true and I don't have any data to support that claim.

How we make money is an entirely different question — I don't think that opening access to some courses will cannibalize our market. Until people figure out how to take OER and repackage into degrees from across the web (google might be able to pull that off) we are going to continue to enroll the kinds of numbers (or greater) that we currently have. Paying for access to an instructor and a community for support that add up to a credential is still what people are after. The negative impact of OER may be in the sunk time it takes staff to produce the resources ... not sure. But if they are designed appropriately, we should be proud to show them off in an open sense.

My questions focus on how we as educators will work to rethink the kinds of environments we use to provide access to our own and other open content providers out there. I see a shift in the willingness for content providers to share — I never thought I would be able to watch full length movies online for free ... let alone write a review of it and embed it in my own site. That is a major shift. I am just curious if we are paying attention to that shift.

I know I didn't really answer your question, but I tried!

28.2.1.16 16. cwc5 - November 11th, 2008 at 9:11 am

Pat, the 6 months is our current policy. There are lots of conversations going on about this, but it is what it is. Our goal has been to make the portfolios built on the PSU Blogs portable. They can be moved easily to wordpress.com or typepad.com without much effort. Is it ideal? No. We are working on it.

28.2.1.17 17. Summary: Embedding Student Expectations | Terra Incognita - A Penn State World Campus Blog - November 22nd, 2008 at 9:32 am

[...] "Embedding Student Expectations," the 25th installment of the Impact of Open Source Software Series, was posted on November 5, 2008, by Cole Camplese. Cole serves as the Director of Education Technology Services at the Pennsylvania State University. As Director, it is his responsibility to oversee University-wide initiatives with a focus on impacting teaching and learning with technology. In reality Cole makes fantastic use of his role, serving as a prime mover and advocate for creativity within (and far beyond) the educational technology community at Penn State. Thanks Cole for a great posting! [...]

28.3 Summary[13]

"Embedding Student Expectations," the 25th installment of the Impact of Open Source Software Series, was posted on November 5, 2008, by Cole Camplese. Cole serves as the Director of Education Technology Services at the Pennsylvania State University. As Director, it is his responsibility to oversee University-wide initiatives with a focus on impacting teaching and learning with technology. In reality Cole makes fantastic use of his role, serving as a prime mover and advocate for creativity within (and far beyond) the educational technology community at Penn State. Thanks Cole for a great posting!

Cole starts by asserting his passion for openness and transparency across all forms of teaching and learning, and then builds a foundation for dialogue about the impact of the remix culture and all that goes along with it in our domain (teaching and learning). Cole sets the table by pointing to a relatively complex web of phenomena that is resulting in "extended conversations." In essence, The Web is finally starting to fulfill some of its promise as a platform for community and that "Openness" is a principal catalyst. The subtext of Cole's message is that Openness provides the context that allows for the tools and media to breath life into rich community-oriented teaching and learning, with all of the benefits of emergent knowledge.

Cole then points to how other media industries are starting to pay more attention to the impact of extended conversation and the rapidly evolving openness culture than we do in education. As an example,

[13] This content is available online at <http://cnx.org/content/m19893/1.1/>.

Cole turns to the ways that we design tools and manage content that enable emergent learning experiences. He points to our lack of tool use that allows for fluidity and transparency in content exchange, sharing, and remixing. In contrast he cites recent examples of other information and media rich industries that are "getting it."

The take home assertion in Cole's post is that the social use of media and development of extended conversations is creating expectations within the community of learners who we serve. He wonders if we are paying attention.

28.3.1 Comments

There were a number of themes that emerged in the comments. As I am always reluctant to take too many liberties with the input that commenters make, I will leave it to you to read the thread. That said, I do believe that on the whole, many of the comments re-focused us on the nature of the University and the challenges new media, remixing, extended conversation, and a culture of openness places on our self-concepts, reward systems, and the economics of education, which help define the ecosystem in which we operate. In addition, some comments highlighted the similarities and differences among education and other traditional media intensive activities/industries.

Thanks again to Cole for his interesting and insightful post and responses. I also want to extend a big thank you to pwhitfield, drs18, pbach, April Sheninger (aprilsheninger), Brett Bixler (brettbixler), pzb4, and Andrea Gregg for adding to the post, and other folks who have been reading along.

On November 26th, Andy Lane will be making a post to the Series. In addition to serving as a Professor, Department Head, and Dean, Andy is the Director of The Open University's OpenLearn Initiative. In his post Andy will be addressing a number of interesting and critical questions about degrees of openness in OER, learning, teaching, and informal and formal learning. I have had the opportunity to follow Andy's work for a number of years now and to meet him twice at Utah State University during the COSL OpenEd meetings and the most recent OCWC meeting. I am looking forward to what will surly be a very interesting and insightful post!

The schedule for the series can be found on WikiEducator[14] .

[14] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

Chapter 29

Systems for Supportive Open Teaching (Andy Lane)

29.1 Introduction - Andy Lane[1]

I want to welcome Andy Lane and thank him for agreeing to contribute to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. In his posting Andy will be referring to Open Learning and Open Educational Resources activities and projects at The UK Open University, while asking some critical questions about what it means to talk about Open Teaching, whether using OERs or not, and how might that teaching be organized so that it is supportive of informal and/or formal learning?

Figure 29.1: Andy Lane

Professor Andy Lane has a BSc in Plant Sciences and a PhD in Pest Management from the University of London. He has been at The Open University[2] since 1983 and held various offices in the former Technology Faculty (now Faculty of Maths, Computing and Technology) including being Head of the Systems Department and Dean of the Technology Faculty. Promoted to Professor of Environmental Systems in 2005, he was appointed as Director of The Open University's OpenLearn Initiative[3] in 2006. He has authored or co-authored many teaching texts and research papers dealing with systems thinking and environmental

[1] This content is available online at <http://cnx.org/content/m19889/1.2/>.
[2] http://www.open.ac.uk/
[3] http://openlearn.open.ac.uk/

management, the use of diagramming to aid systems thinking and study, and more recently the development and use of Open Educational Resources.

I have been actively following Andy's work with Open Educational Resources through the OpenLearn project for a number of years. I also met him twice at Utah State University during the COSL[4] OpenEd meetings and the most recent OCWC[5] meeting. Each time we have meet I have learned something interesting and gained a better appreciation for the leadership that Andy has provided to the groundbreaking work that the OpenLearn initiative represents. Andy's post is scheduled for November 26, 2008. Please feel free to comment (early and often!), ask questions, build on the conversation, and enjoy.

29.1.1 Comments

29.1.1.1 1. GMC - January 16th, 2009 at 3:16 am

It will be interesting to get another perspecive going. Always interesting to learn.

29.1.1.2 2. kartik - February 24th, 2009 at 7:38 am

Its fascinating that prof's have taken up this initiative of open courseware and open source software. While there are many forums with vertical specialization like MBA Forum which provide mba project disseration as a discussion board with faculties handholding business students (future business guru's) , research dissemination and e-learning through help of open source by profs with individual blogs is what we'd really love to look forward to in future.

29.2 Systems for Supportive Open Teaching [6]

NOTE: Author - Andy Lane, "Systems for Supportive Open Teaching". Originally submitted November 26th, 2008 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

Here are some ideas that I have been mulling over lately. They also follow on well from the recent contributions from Martin Weller around exploring new ways of being open and Cole Camplese on embedding student expectations.

Education is a process that generally involves learners, teachers and sets of educational resources that can be mediating artifacts in the educational process, arranged in some structured way (see Lane, 2008a). It is a purposeful human activity where education is the main purpose. Learning can also occur in non-educational settings when it is better described as a purposive activity where it is useful to describe it as educational even though that may not be the primary purpose of that activity (lifelong learning or the University of Life?). In the latter case there are learners but no obvious teachers or educational resources as the learners draw upon many different people and things in their social or working environments.

I set out these thumbnail sketches of systems for describing educational experiences to pose the question what are the main properties of the components of such systems and the practices expected of people involved when we put open in front of them? What do we mean by open education, open learning, open teaching and open educational resources?

Open education has got a lot of attention lately with the series of Open Education conferences[7] , the Cape Town Declaration on open education[8] and recent books such as one I have contributed to called Opening Up Education[9] . Wikipedia defines open education as a collective term that refers to forms of education in which knowledge ideas or important aspects of teaching methodology or infrastructure are shared over the

[4] http://cosl.usu.edu/
[5] http://www.ocwconsortium.org/
[6] This content is available online at <http://cnx.org/content/m19886/1.3/>.
[7] http://cosl.usu.edu/events/opened2008/
[8] http://www.capetowndeclaration.org/read-the-declaration
[9] http://mitpress.mit.edu/opening_up_education/

internet. That seems to rather dismiss pre-internet activity and I go along with what I say in my chapter in the aforementioned book (Lane, 2008b) that openness has many dimensions but is about removing barriers to education.

Open learning has been a phrase used for some time as well with a Journal of Open and Distance Learning[10] and the Open University in the UK basing its work on a supported open learning model[11] . Again a significant aspect of open learning is about removing barriers to learners engaging with educational experiences and I have talked about that elsewhere (Lane, 2008c).

Open educational resources are even more topical and talked about starting with the definition given at a UNESCO workshop (UNESCO 2002) through to the large funding program from the William and Flora Hewlett Foundation[12] where they also see OERs as being one way to help transform teaching and learning. A central feature of OERs is an open license that allows and encourages sharing, reuse and remixing (and probably influences the current Wikipedia entry for open education).

What has been less obvious is discussion about open teaching and that is what I want to focus on for the rest of this piece.

So what might constitute open teaching? Is it about creating teaching experiences that eliminate barriers to students taking part in those experiences or is it about (re)using OERs that are available to all? While we could have interesting debates about such definitions as with all aspects of openness, I think it more valuable to think about how openness changes the basic praxis of teaching from an essentially individual activity to a shared activity. Stereotypically most teachers work alone in constructing and delivering their teaching experiences.

They may draw upon others similar work in this process and they may involve their students in co-creation or delivery of the experiences, but fundamentally they alone decide on a chosen path or lay out a new route map of resources and activities that constitute the educational experience. However, the arrival of OERs has meant that both teachers and students are able to view in greater depth the teaching and learning experiences of others to inform their own praxis. They are also able to 'teach' more easily (and effectively?) around someone else's resources and maybe activities. But even more than that, it is becoming possible to rework other people's material and to even co-create such material with colleagues around the world.

The co-creation of educational resources and courses is a major feature of open and distance learning where teams of academics (supported by media professionals) develop and deliver the teaching and learning experiences, including our associate Lecturers who do 'teach' around the main, carefully crafted, proscribed educational materials. At the Open University there may be as many as a dozen academics writing for and commenting on other's work in the same course team to develop these carefully crafted educational materials and associated activities.

This is team teaching that can seriously challenge your thinking and has encompassed some of the most heated academic discussions I have ever witnessed! But it does produce high quality materials, albeit at high cost and in a clear institutional framework. So, can such synchronous or even asynchronous collaboration and co-operation occur between institutions and across borders and will (open) teaching become more of a collective than an individual activity in future?

Of course there are many barriers to open teaching or any changes in teaching practice as well discussed around Cole's contribution and also discussed by Diane Harley in the Opening Up Education book I mentioned earlier, not least the lack of recognition of teaching compared to research in promotion and tenure. Nevertheless, just as much research has steadily moved from individual to team efforts and still been accounted for largely through peer review by their community of practice, open, collective teaching can be accounted for in similar ways.

The openly published nature of the resources means that such scholarship is as evident as any research publication and the more open nature of the reviews of the resources and associated experiences means there is potentially more feedback than for most research and more ways to assess impact and contribution. In other words the very openness of teaching makes it more accountable than much research, it is just that we

[10] http://www.tandf.co.uk/journals/titles/02680513.asp
[11] http://www.open.ac.uk/new/distance-learning.shtml
[12] http://www.hewlett.org/Programs/Education/OER/

have to work out the ways that citation (e.g. numbers of reuse, numbers of reworking. etc), peer and user reviews can be factored into the rewards and recognition that academics receive (and of course eliminating the shameless self citation I did at the beginning of this piece!).

Such recognition and reward for teaching is practiced in the Open University for the same reasons that teaching success can be measured by peer review of the scholarship in authored materials and user reviews of its effectiveness and impact with learners and others. I have argued in Opening Up Education that successful supported open learning depend on the four Ps of support: pedagogic support as built into materials, personal support of the learner, peer support from fellow learners and the professional support provided by 'teachers' and that the latter is most important most of the time. But those professional teachers also need to feel, and actually be, supported if they are to make open education a mass rather than a niche phenomenon. The culture change that is needed lies mostly with institutional policies and practices, not teachers or learners. Perhaps, as with OERs, this needs to happen first in the most prestigious institutions or be recognised by the most prestigious learned societies to demonstrate to everyone else that teaching matters as much as research.

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29.2.2 Comments

29.2.2.1 1. Systems for Supportive Open Teaching - elearnspace - November 26th, 2008 at 3:08 pm

[...] experienced this in CCK08: Systems for Supportive Open TeachingJ: "I think it more valuable to think about how openness changes the basic praxis of teaching [...]

2. beth.harris - November 28th, 2008 at 10:20 pm

Interesting post! There is clearly incredible value to be found in co-creating educational resources — and moving away from the lone teacher developing their course. At Smarthistory.org[16] — an art history resource I am developing with Dr. Steven Zucker (we recently won an award from Avicom — the multimedia wing of the International Council of Museums — the "gold award" in the web category), we believe that audio and video conversations can be a powerful teaching tool — and the feedback from our students supports this. Students listen to learning taking place — through social interaction — and by opening up our classrooms, we can only become better teachers. And the question is — as Andy points out — how can we best expand this across institutional and international boundaries.

[13] http://mitpress.mit.edu/books/chapters/0262033712chap10.pdf
[14] http://www.wikieducator.org/PCF5/Governance_and_social_justice
[15] http://unesco.unesco.org/images/0012/001285/12851e.pdf
[16] http://Smarthistory.org/

One question for this blog though — and one I have asked before.

Out of 26 guest bloggers — only 5 are women!

Are we really to believe that there are not very many women thinking about open and online education?

Clearly — the values of open education — of open academic discourse — could only benefit from a diverse community of bloggers.

29.2.2.2 3. Ken Udas - December 4th, 2008 at 5:21 pm

Hello,

First, I am sorry for not getting back more quickly. The Thanksgiving holiday had me traveling and then there was a stack of work when I returned to the Office. Andy, thank you for the great post. I am wondering if you could talk a bit about what you have learned form your experiences with OpenLearn relative to the co-creation, reuse, and sharing of educational materials.

@Beth, it is not always so easy to line up guests to post. I have tired to ensure that there is a diverse international and disciplinary perspective. Believe it or not, I have tried to be quite mindful about gender also, but I have perhaps not been so successful. That said, I am open to recommendations for guests who will help ensure more diversity in the series.

Cheers

Ken

29.2.2.3 4. Andy Lane - December 5th, 2008 at 11:40 am

"I am wondering if you could talk a bit about what you have learned form your experiences with OpenLearn relative to the co-creation, reuse, and sharing of educational materials."

@Ken, there is a lot to say about this although we will be publishing a 80 page research report very shortly which will also cover much of this.

First, some figures. In 2 years we have had 3 million unique visitors to OpenLearn across both LearningSpace and LabSpace, with over 90% visting the LearningSpace. Generally, we push LearningSpace for learners and LabSpace for educators but some use both to some extent. Among other things a major difference is that you can take away or download (often the same) content from both but you can only upload revisions of our content or your own content to the LabSpace (it is also possible to do in situ editing of content in the LabSpace). There are 8 different formats/ forms of taking content away - printing out (as nice HTML formatted document), RSS, Unit content XML, IMS CP, IMS CC, OUXML, Plan zip and Moodle backup - and currently there are about 10,000 study units printed per week and an equal number of downloads in all the other formats. So the content is mobile but we only have a few anecdotes/ cases of what happens to all of it (there is some direct offline use, direct referrals in from online courses at other HEIs etc). We have also provided some folk with DVDs of all the content to load into their own LMS and where internet access may be msiining or poor - e.g. 15 prisons in England.

Second, it is worth perusing the LabSpace to look at the study units for in some instances there are edited versions of them attached as a string (all these versions are badged as public contributions. About 15% of the 500 odd study units have a version(s). In most cases the changes are minimal and people have just been trying out the technology. Also in the LabSpace are areas we call PlaySpace and Collaborations, the former any registered user can set up a unit and populate it with content and there are over 100 of these, the latter are areas we set up for projects/organisations where we can give some folk additional permissions, There are about 35 of these and some are full of content, one has won an award and two are in fact being used as the means to deliver a regular course at another HEI. In most of these areas the people are using it for professional devleopment, learning how to use the technologies and to experiment. In many ways our technology is more demanding than Connexions as a para-community site but there are more sophisticated features like the free videoconferencing and knowledge mapping which many find attractive.

Overall, it is taking time for everyone to get to grips with the ideas and praxis of co-creation and sharing as much as the technologies and we often have to mentor folk as they find their way (but we are capturing and will be writing up what works and what doesn't work as soon as we can). But momentum is building

and usage is growing every week and folk are using stuff in ways we had not imagined and I have not even talked about Laerning Clubs - I will leave folk to look for themselves to see what these are on OpenLearn,

29.2.2.4 5. Ken Udas - December 9th, 2008 at 5:45 am

Andy,

Thank you. First, I am looking forward to the report. In addition, I would like to follow-up a bit on your thoughts or plans that you have to elicit more activity or contributions through OpenLearn, particularly through co-development and reuse. That is, it seems that many of us see much more potential in OER and OCW than we are realizing. I know this is a bigger question than OpenLearn, but:

- Do you agree that we have a lot more potential to realize, and if so
- How do you think this might be achieved – what are some of the factors (are you planning anything relative to OpenLearn)?

Cheers & Thanks! Ken

29.2.2.5 6. Andy Lane - December 9th, 2008 at 9:24 am

> *"I know this is a bigger question than OpenLearn, but:*
>
> *- Do you agree that we have a lot more potential to realize, and if so*
>
> *- How do you think this might be achieved – what are some of the factors (are you planning anything relative to OpenLearn)?"*

@Ken Yes there is a lot more potential to realize but it will be a long time a-coming. The reasons for delay are changing cultures, the potential stems from the very openness or OERs. Many promises have been made or expected from ICTs, e-learning etc but impacts have been less than expected. While some of that is down to hype I think a major factor has been the entrenched exclusivity of teaching practice - generally only the students see it and through the eyes of a learner, not a teacher. One of the most significant impacts at MIT appears to be the way faculty are now adjusting their courses and lectures in the light of seeing what fellow faculty are teaching (even if that is only the content) . So not only might they be making a little extra effort to make their own content look 'good' they are adjusting it to the hoped for benefit of the students. None of this involves direct cooperation or collaboration but it does lead to enhanced coordination through the openness of the content. Then there are the similar inter-institutional effects and the increased scope to draw upon or point to resources from elsewhere. But detailed reworking or mash-ups are still the preserve of the dedicated few at the moment because it is best done as a team and does need that more overt recognition from promotions etc to make people devote the time and energy to it. However, the very openness of the content to all, not just other teachers means that teachers will not be able to ignore it in the way they could pre-defined collection or repositories because their students or others did not know what was available elsewhere.

In effect this is an emerging gift economy played out on the internet and is of a nature not previously seen, slowly changing the relationships between teachers and learners and others in numerous ways in all countries, not just the rich ones.

What are the OU doing about it? We are experimenting and innovating in as many spaces as we can. OpenLearn is content led, SocialLearn which Martin Weller talked about is technology led. Both are trying to understand what people want to do about learning throughout their lives and in different contexts. We aim to do things at scale but still be personal - mass customisation - whether on our own or in partnership with others.

29.2.2.6 7. Ken Udas - December 13th, 2008 at 1:03 am

Andy,

Thank you. I suppose that it seems natural that "simpler" activities such as posting and improving ones own content would happen before more complex activities such as revision, reuse, and sharing of others work. It would seem to me that aside from reducing barriers to editing, reuse, and sharing on the part of OER projects, it would be important for universities to incentivize these activities for their faculty. Do you know of a list of practices that address incentives that can be used within an organization?

I am going to change direction a bit, just to get your (or anybody else's) thoughts. I am currently attending an interesting meeting titled "Rethinking the university after Bologna: New concepts and practices beyond tradition and the market", and a majority of the meeting sessions have either directly addressed or have referred to some aspect of Open Access (OA). In many cases it has been in reference to OA journals and research. Over lunch though, a colleague from a French NGO pointed out that for most American and British faculty all scientific journals seem open because their universities subscribe heavily to journal database services. This individual's conclusion is that because there appears to be no access issue (to Journals in most US and UK universities), it is not considered an issue that ought to be addressed. That is, when the problem is out of sight, it is also out of mind.

My question is if you find that American and British OER related projects are working closely enough with OA journal and research efforts? If not, do you think it matters from an impact point of view, particularly for learners interested in self-study outside of a formal university setting or at universities that do not subscribe to journal databases? I would guess that these two groups represent a relatively large part of the population that we would like to benefit from OER efforts.

Thank You, Ken

29.2.2.7 8. Summary: Systems for Supportive Open Teaching | Terra Incognita - A Penn State World Campus Blog - December 30th, 2008 at 7:19 pm

[...] "Systems for Supportive Open Teaching," the 26th installment of the Impact of Open Source Software Series, was posted on November 26, 2008, by Andy Lane. Andy has been at The Open University since 1983 and, in addition to serving as a Professor of Environmental Systems, has held various offices in the former Technology Faculty (now Faculty of Maths, Computing and Technology) including being Head of the Systems Department and Dean of the Technology Faculty. [...]

29.2.2.8 9. Matt - February 22nd, 2009 at 5:57 am

Interesting post! There is clearly incredible value to be found in co-creating educational resources — and moving away from the lone teacher developing their course. healing remedies At Smarthistory.org — an art history resource I am developing with Dr. Steven Zucker (we recently won an award from Avicom — the multimedia wing of the International Council of Museums — the "gold award" in the web category), we believe that audio and video conversations can be a powerful teaching tool — and the feedback from our students supports this. Students listen to learning taking place — through social interaction — and by opening up our classrooms, we can only become better teachers. And the question is — as Andy points out — how can we best expand this across institutional and international boundaries.

29.3 Summary[17]

"Systems for Supportive Open Teaching," the 26th installment of the Impact of Open Source Software Series, was posted on November 26, 2008, by Andy Lane. Andy has been at The Open University since 1983 and, in addition to serving as a Professor of Environmental Systems, has held various offices in the former Technology Faculty (now Faculty of Maths, Computing and Technology) including being Head of the Systems Department and Dean of the Technology Faculty.

[17] This content is available online at <http://cnx.org/content/m19887/1.3/>.

In 2006 he was appointed as Director of The Open University's OpenLearn Initiative. He has authored or co-authored many teaching texts and research papers dealing with systems thinking and environmental management, the use of diagramming to aid systems thinking and study, and more recently the development and use of Open Educational Resources. Thanks, Andy, for a great posting!

Andy starts his posting by describing a number of educational opportunities that range from formal educational activities to quite informal learning. In some of the scenarios we might be able to identify a learner, but not a teacher or learning resources. He then poses questions about the main properties of a range of educational systems and the practices expected of people involved when we put "open" in front of them.

> *What do we mean by open education, open learning, open teaching and open educational resources?*

Andy notes that open learning existed before the Internet, and likes to associate "open" with activities and products that reduce barriers to education. He then asks about what constitutes "open teaching," and refers to the potential of open educational resources (OER) to help teachers reduce barriers to education. He also looks beyond some of the obvious benefits of reuse to the potential benefits of co-development of educational materials. The idea here is to expand the critical review process and other assets that professionals at places like the Open University enjoy to a larger and more distributed community of practitioners and scholars. This prompts Andy to pose the following question:

> *So, can such synchronous or even asynchronous collaboration and co-operation occur between institutions and across borders and will (open) teaching become more of a collective than an individual activity in future?*

Andy then points to typical reward systems in higher education that tend to place the individual above the group, in which more value is assigned to individual efforts than to collaborative or group efforts. He indicates that some traditional research products would benefit from communal production and that with just a little creativity the university reward system could easily recognize the value of peer-oriented teaching and learning.

Andy concludes his posting by outlining what he feels are essential elements to open teaching:

- Pedagogic support as built into materials
- Personal support of the learner
- Peer support from fellow learners and
- Professional support provided by 'teachers' and that this element is most important most of the time.

He also conjectures that for these elements to exist, there has to be organizational commitment, and perhaps, if Open Teaching and Learning is going to be a serious phenomenon, rather than a niche concept, learning and prestigious institutions will have to serve as models.

29.3.1 Comments

Dr. Lane did a great job responding thoroughly to the questions and comments made following his posting. Please feel free to refer to the thread following the Systems for Supportive Open Teaching, post. Many of the questions focused on the connections between OER and pedagogy, the challenges around peer production and reuse of OER, and his observations and experiences while leading the OpenLearn initiative.

Thanks again to Andy for his interesting and insightful post and his responses. I also want to extend a big thank you to eLearnSpace[18] , Beth Harris, and other folks who have been reading along.

Once again, special thanks to our recent contributors, Martin Weller (Section 27.2), Cole Camplese (Section 28.2), and Andy Lane (Section 29.2). I will ask a few more guests to participate in the OER and

[18] http://www.elearnspace.org/

OSS series in the coming months. If you have any recommendations, please let me know. I am constantly trying to identify individuals with unique perspectives, practical experiences, and interesting insights. So, if you have any suggestions or would like to volunteer, please feel free to send me an email at keu10@psu.edu.

The schedule for the series can be found on WikiEducator[19] .

29.3.1.1 Comments on Summary

29.3.1.2 myclass- February 28th, 2009 at 12:56 pm

Open Teaching gives the teacher an opportunity to learn from the students. No one person knows everything. We all can learn something from someone. As a teacher, I prefer a class where the students are interactive and collaborating with me. Lectured classes are so old school!

God Bless!

[19] http://www.wikieducator.org/Open_Source_Software_in_Education_Series_on_Terra_Incognita

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The Impact of Open Source Software on Education

This resource has been compiled from a collection of postings by an international group of leading authors on "The Impact of Open Source Software on Education". The authors' contributions and comments serve as a series of case studies about how institutions around the world (UK, India, New Zealand, Iran, Africa, Caribbean, US, Australia, etc.) have made use of open source educational software and the ways that these educational resources have been made available within their respective universities and to the public. The postings were originally contributed to Terra Incognita, a blog devoted to exploring new ground in higher education sponsored by Penn State's World Campus. The series has grown out of the increasingly diverse dialogue that is surfacing about open source software, which is truly becoming an international phenomena that is impacting higher education and larger society.

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