An Open Source Vision for Caribbean Higher Education

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CONNEXIONS

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Chapter 1

Three Special Events in the History of Technology for Creating, Organizing, and Sharing Information

1.1 Introduction

The development of technologies for encoding, storing, communicating, and exploiting information is a major feature in the history of the human species. Although this development has generally progressed smoothly over time, we feel it is valuable to identify three significant points of rapid change or “paradigm shifts.” The first and possibly most revolutionary change was the invention of writing and its companion, literacy—the transition from an oral to a writing culture. The second was the invention of the printing press—the transition from hand-writing to the print culture.

We are now in the midst of a third transition to an electronic or digital culture. A convergence of several technologies has created new systems for dealing with information that are potentially as revolutionary as the development of literacy and the invention of the printing press. The base for this transition was established in the 1940s with the invention of the digital computer and the development of information theory. It was empowered by the invention of the transistor and integrated circuit and has blossomed thanks to the connectivity provided by the Internet and wireless technology and the storage provided by semiconductor, hard disk, and optical memory. The ever-increasing power of computer and communications hardware has been accompanied by ever more powerful software in the form of computer languages, operating systems, communication protocols, and search technologies.

It may be that most people feel they live in a time of major change, but history reveals that few actually do. One purpose of this paper is to examine earlier transitions in order to establish that we are indeed currently in another paradigm shift. A second purpose is to challenge the usual pattern of discovering after the fact that something big has happened and then determining how to mitigate the damage or inefficiencies that seem inevitably to ensue from major change and how to take advantage of the new opportunities and capabilities that are opened. For example, literacy was first an improvement and extension of the oral tradition; it subsequently created completely new systems for human uses of information. The printing press was first an improvement on the hand-written method of producing books; it then transformed the entire literate world and extended it to the masses. Today, the information age has produced a setting in which new information systems will transform not only the way we develop and exploit information, but also the way we interact with each other.

In this paper, we discuss in particular detail the educational publishing project, Connexions \(^2\), as an

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\(^1\) This content is available online at <http://cnx.org/content/m13676/1.1/>.

\(^2\) http://cnx.org
example of a new technology that is both a natural evolution out of literacy and the printing press and a revolutionary change or paradigm shift that will be as disruptive as were writing and printing. The reason we do this in a historical context is to develop Connexions in a deliberate way, to achieve the positive goals we currently envisage for education as well as general information usage, and to use a strategy that will attempt to maximize the positive unintended consequences and minimize the negative ones. We try to take a “holistic” approach, taking into account what goes on (or can go on) in the human brain, what goes on (or can go on) in individuals or small groups, and what can go on in large societies or cultures.

Because this short paper covers a large span of time, ideas, and history that cannot be fully developed, we provide a fairly comprehensive set of references.

1.2 Literacy

The emergence of writing and literate activity some five thousand years ago transformed human life as profoundly as the earlier revolutions of intensive agriculture and language. [Goody]

The earliest uses of writing were to record lists of inventories and of sale and purchase transactions. Later, writing served as a means of helping the memory of storytellers in the oral traditionwriting was used as a prompt, not as part of an intellectual or creative activity. The people who read used writing to help them remember stories they and their audiences already knew. Only later did people read stories that writers had created, not merely recorded.

Without writing, the literate mind would not and could not think as it does, not only when engaged in writing but normally even when it is composing its thoughts in oral form. More than any other single invention, writing has transformed human consciousness. [Ong, p. 78]

Resistance to change occurred even in the earliest stages of literacy. As intellectuals, leaders, and thinkers considered the merits of this new “technology” called writing and literacy, they predicted its potential shortcomings. In the Phaedrus, Plato has Socrates say that writing is inhuman, a pretender, establishing “outside the mind what in reality can be only in the mind,” then adding that “writing weakens the mind.” Perhaps writing does weaken the memory, just as the calculator may weaken the memorized knowledge of the multiplication tables or speed-dial may reduce the memory of telephone numbers. Experience has demonstrated, however, that some very positive personal and societal effects accompanied these “weakensings.”

Some of the dire predictions came true, of course, because they were grounded in what was known. The positive things produced by literacy generally outweighed the negative but were often not predictable because nothing like them had ever existed. Literacy created a new culture, but it also destroyed part of the old one, and that should be kept in mind. This example illustrates the Law of Unintended Consequences.

Many of the stories in the oral culture were structured in the style of poetry with rhyme, rhythm, and form to aid the memory. The telling of these stories was a performance by a highly skilled person with many tricks to help him/her remember and the ability to improvise and create on the fly. If a person in a story fell from favor, then they might disappear from the next telling. The story was “alive,” continuously adapting and changing.

After writing came into general use, the culture of communication changed. Poetry evolved into a more compact and efficient prose, as memory aids were no longer needed. Similarly, the need to improvise vanished, and a larger group of people was able to tell (read) stories, with more “accuracy” but at a cost. The stories become frozen, perhaps even “dead.” They became separated from the teller and the listener, with an independent existence in written form.

But there’s a larger point here. Writing would also significantly add to the power of the word, and in so doing it would change the nature of what could be thought. [Stephens, p. 17]
The earliest writing used symbols that directly depicted the object or idea being described. In the west, this ‘short hand’ evolved into phonetic symbols representing sounds in speech rather than the objects themselves. This early writing was only loosely tied to language, but the arrangement changed to a tight connection when the phonetic alphabet evolved and people were able to read aloud.

The pictorial writing systems required an enormous number of symbols, but the change to a phonetic system reduced the number, similar to today’s western alphabets. The number of phonetic symbols, in fact, was initially too small since the alphabet had no vowels, only consonants. Words and sentences were not separated, and there were no paragraphs or chapters. Like shorthand, the written language was a prompt, enabling the reader to ‘know’ what had been written (probably because he already knew it). Indeed, a fully phonetic alphabet, the separation of words, and the development of punctuation, all of which enabled silent reading (which occurred around the 1500s), were major advances in the technology of writing and the book. This was the second phase in the development of writing, where unanticipated developments were changing everything.

As the change toward literacy has occurred, it has produced changes in the configuration of human society. . . . An act of vision was offered in place of an act of hearing as the means of communication, and as the means of storing communication. The adjustment that it caused was in part social, but the major effect was felt in the mind and the way the mind thinks as it speaks. (Emphasis added) - [Havelock, p. 100]?

In addition to much-improved efficiency, the development of writing techniques brought along other ideas and changes.

The printed text is supposed to represent the works of an author in definitive or ‘final’ form. For print is comfortable only with finality. . . . Print culture of itself has a different mindset. It tends to feel a work as “closed,” set off from other works, a unit in itself. Print culture gave birth to the romantic notions of “originality” and “creativity,” which set apart an individual work from other works even more, seeing its origins and meaning as independent of outside influence, at least ideally. - [Ong, pp. 132-133]?

A supportive commercial enterprise accompanied the development of literacy. At first, manuscripts were written from the orally composed stories. Perhaps Homer’s epic writings came into being this way. Later, manuscripts were composed directly in writing, never having been uttered. An industry developed that would copy these “originals” under commission, as a tailor sews suits. After a literate public developed, the scribes would make several copies of a manuscript and then offer them for sale much as a clothing store operates now. Along with this commercial side, a legal device came into being. If money could be made, the question of ownership arose and the concept of the “right to copy” or the “copyright” was invented.

If we step back and look at this comparison of the oral and written cultures, we see still another interesting and pertinent dimension that has to do with physiology. If I tell you a story, then I transfer a piece of information from my brain into yours. On the other hand, if I write that story down on paper and you read it, then I have also transferred the piece of information from my brain into yours, but it has gone through a quite different part of the brain and nervous system. In the first case, a vocal and auditory process occurred. A blind person could participate. In the second case, an image and visual process occurred, and a deaf person could participate. In the first case, a person could address a crowd and a certain efficiency could be achieved, but in the second case, a much larger audience could be reached and spread over time as well as space.

Technology has continued to expand both the means of communication, with the telephone, radio, and tape recorder extending the vocal/auditory process and the telegraph, fax, television, and email extending the visual process. Is this what the Sumerians and Greeks, the inventors of writing and the alphabet, had in mind? Surely not, but some unintended consequences produce phenomenally positive ends.

In this section, we have tried to indicate the incredible effects that literacy has had on human culture. The point is that some of the predicted negative effects did occur and many of the positive effects that occurred were not predicted. This was true because the negative effects were mainly the destruction of something that
was known. The positive effects, however, involved the creation of things that were completely unknown in
the preliterate culture. Some of those positive effects were initially seen as negative. These factors need to
be very carefully considered as we try to predict the future of the next phase of information systems. Indeed,
the negative “unintended consequence” is the effect that we wish to understand and minimize.

Reading and writing seem to fit the definition of technology quite well and can be studied as such. For
greater depth and more detail on literacy and writing, one should read the works of Parry, Ong, Havelock,
and Goody. For an example of how writing and literacy are viewed as technology, see Goody’s Chapter 8:
“Technologies of the Intellect: Writing and the Written Word.”

1.3 The Book and the Printing Press

About the year 1450 some rather unusual “manuscripts” made their appearance in the northern regions of Western Europe. Although not very different in appearance from traditional manuscripts, they were “impressed” on paper, sometimes on vellum, with the mechanical aid of a printing press which used movable type. - [Febvre and Martin, p. 9][7]

Gutenberg’s invention of the movable-type printing press in the fifteenth century is widely considered, along with gunpowder and the compass, one of the three most influential inventions in history. This is a truly remarkable statement since the first printed books looked fairly similar to the hand-written books that preceded them. Nevertheless, the enormously improved efficiency and accuracy of machine-printed books had a powerful effect that continued to develop for centuries. As with other “disruptive technologies,” the first phase of influence was simply to do the old job better. Then, in the second phase, the existence of large numbers of inexpensive books changed the way education and communication took place, the way material was authored and, in the process, invented a new tool for mass entertainment and created a commercial commodity.

To bring the problem into a sharper focus: the advent of printing, we are told, was the most important event “in the cultural history of mankind;” it “brought about the most radical transformation in the conditions of intellectual life in the history of Western civilization.” - [Eisenstein, p. 115][7]

This transformation occurred not only in the life of the elite, but in all of society. The inventions of literacy and the printing press brought to the masses what previously had been reserved for the privileged and, before that, the priest and the scholar. They brought a new and different dimension to the democratic process, the educational enterprise, and the religious life of the society. It is no coincidence that the Reformation, a democratization of Christian religious life, also began in Germany, within a century of Gutenberg’s invention. What was the obvious book to be printed by this new technology? The Bible. What was the obvious result? Readers—priests, educated laymen, even the literate poor—might read and interpret for themselves. Revolution. Certainly an unintended consequence but, perhaps with more thought, a predictable one.

The current paper book is the result of technical evolution over thousands of years. It is now a mature technology and is being challenged by modern digital technologies. Stone, bone, clay, papyrus, scrolls, codex, ink, paper, and the printing press were all steps in its evolution. A parallel development of a commercial system supported the creation and marketing of books, resulting in the current system of authors, editors, publishers, book stores, and readers. We are now seeing the beginning of the effects of modern digital technology, mass storage technology, and Internet communications.

Because the printing press had a much greater impact than was anticipated, we may ask if the use of electronic or digital information—cheaper to produce, easier to author, easier to alter, and almost free to distribute—will have a similar powerful, unexpected effect. Of course it will.

1.4 Hypertext and the World Wide Web

The most remarkable species of book to punctuate the equilibrium of the twentieth century was
The modern concept of hypertext seems to have originated with the 1945 *Atlantic Monthly* article by Vannevar Bush, who used his ideas of how the mind works “by associations” to propose the memex, a forerunner to linked hypertext.

In the early 1960s, after reading Bush’s article, Douglas Engelbart started the Augmentation Research Center (ARC) at the Stanford Research Institute. The ARC used a precursor of hypertext in what it called the *On-Line System*. Engelbart talked about asynchronous collaboration among teams distributed geographically, about the use of computers to augment human intellect, and about the idea of “bootstrapping” as an iterative and coadaptive learning processes or a feedback system. All of these ideas show up in *Connexions*, to be described later.

The actual term, “hypertext,” was coined around 1965 by Ted Nelson, who developed the idea in a complex system he called Xanadu.

By “hypertext,” I mean non-sequential writing—text that branches and allows choices to the reader, best read at an interactive screen. As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways. - [Nelson 1965][?] A form of hypertext has come into common use on the Internet and World Wide Web (WWW) with the hypertext markup language (HTML), the hypertext transfer protocol (HTTP), and the browser, *Mosaic*, which evolved into the familiar *Firefox*, *Netscape*, *Internet Explorer*, and other browsers. HTML enables the linking of a point in a text to another point in that text or another text. This linking is created by the author to allow a new control by the reader.

This system, which breaks up the usual linear or sequential structure of the traditional book so that readers can easily branch to related topics, may be more compatible with the way people think and learn (that is what Bush and Engelbart had in mind). The traditional book tries to bring this ability with the use of page references, footnotes, endnotes, sidebars, and other print techniques. The table of contents and index are attempts to create a more flexible structure. In a way, these structures are precursors to hypertext and the digital search engines.

Ted Nelson talks about the free-flowing live documents on the network being subject to constant new use and linkage, and those new links continually becoming interactively available. Any detached copy someone keeps is frozen and dead, lacking access to the new linkage. This is an interesting response to Plato’s concern about the harmful effect of literacy and writing. If literacy and writing “killed” the text, then perhaps hypertext brings it back to life in an even more flexible form. Indeed, it may create a format that we cannot imagine now.

Hypertext would not have achieved its broad impact without the development of the modern Internet, WWW, and the high-density storage of hard disks and CD-ROMs. Again we have an interesting case of unintended consequences, with the seminal ARPAnet evolving from a research and defense tool into the popular business, educational, communication, and personal information lifeline it has become today.

HTML, the hypertext markup language, not only implements linking, but also allows control of the display of material. Unfortunately, it does not do much to encode what the material means. A second-generation language called the *extensible markup language* (XML) is just now becoming available; it can distinguish between form and content. This ability will be crucial to bringing a new information system into being.

As writing and literacy extended human memory and accuracy, hypertext extends the way the human mind connects and relates ideas and information in text. It is a way to more directly implement metaphor, analogies, and multidimensional relationships. The human mind contains ideas and stories that traditional text and books capture efficiently and effectively. The connections and relationships of ideas and the dynamic nature of thinking are crudely captured by traditional text, but both are better implemented and extended by the linking and tagging in hypertext. This opens a rich set of educational and perhaps artistic possibilities, with the combination of text and hypertext providing a more accurate match to the way the mind works (or might evolve into working).
In an extreme view, the world can be seen as only connections, nothing else. We think of a dictionary as the repository of meaning, but it defines words only in terms of other words. I liked the idea that a piece of information is really defined only by what it’s related to, and how it’s related. . . . The structure is everything.” - [Berners-Lee, p. 12]\(^1\)

A deep understanding of this new hypertext environment is much more difficult than looking back at literacy or the printing press, because we are in the middle of creating it. That, of course, is the point of this article. Read the material by and about Bush, Engelbart, Nelson, Levy, Novak, Berners-Lee, and Landow, then use a browser on the web to see how hypertext changes reading and the use of information. Less positive interpretations of some of the unintended consequences are presented by Birkerts and Postman.

1.5 The Digital Commons

Digital computation, storage, and communication technology have enabled entirely new ways to create, organize, and exploit information. For example, as we have seen, hypertext breaks apart the linear sequential ordering of the book, giving both the author and the reader new possibilities, greater flexibilities, and more control. But merely publishing a book as a set of hypertext web pages is only the first incremental step along the way of the third transition. In this period, we will see all modes of interaction with information changed, in particular not just how humans interact with information but also how they interact with each other.

The print age has been based on paper books that are loosely inter-connected through a system of citations and quotations. Books themselves are organized into libraries, the “cathedrals of learning” if you will. Consider carefully the role that people play in this age. Most books are written by a single author or a small team, and authors are only loosely connected together into communities. A book’s readers are generally completely disconnected from one another. Moreover, the time scale of writing, editing, peer-reviewing, an updating is on the time-scale of years. Since time costs money, books are expensive. In summary, we can describe the print age as loosely connected, slow-paced, and costly.

The efficient one-to-many, one-to-one, and many-to-many communication links provided by the Internet and WWW are reinventing the book into a new information system that is tightly interconnected, fast-paced, and inexpensive. The core concept is the idea of a digital commons, a vast repository of richly inter-linked hypertext materials that is woven and tended by a multitude of authors worldwide. In the digital commons, authors can form communities to collaborate and continuously improve, re-use, and reorganize the material in the commons. The community culture created by this system could have some of the attributes of the “collective intelligence” of Levy, Engelbart, Licklider, Barabási, Weinberger, and others where the resulting whole is greater than the sum of its parts. The readers of the commons are also more tightly connected by communications technologies (email, discussion forums, chat rooms, blogs, wikis, and so on). If current libraries can be compared to Eric Raymond’s cathedrals, then the future digital commons will be like a bazaar.

“... humanity has a chance to reclaim its future. Not by placing its destiny in the hands of some so-called intelligent mechanism, but by systematically producing the tools that will enable it to shape itself into intelligent communities, capable of negotiating the stormy seas of change.” - [Levy p. xxv] \(^2\)

In contrast to traditional libraries, the digital commons is global and under continual, 24/7 expansion and revision. And, in sharp contrast to the “tragedy of the commons” often cited in the literature, this is a commons without a necessary tragedy; indeed, as its use grows, Metcalfe’s Law (which holds that the usefulness, or utility, of a network is proportional to the square of the number of users) will amplify its effect. The digital commons will provide new opportunities for writing, scholarship, reading, and learning.

... primary and secondary materials will interact more powerfully than before as both are online side by side. Scholarly discussions will quote the original by pointing to it, and leave the reader...
to explore the original context, not just the few words or sentences most opposite. Conversely, texts will acquire structured commentaries not by single hands but organized out of the work of many. - [O'Donnell, pp. 132-4]?

Indeed, this new format turns out to be similar to some of the modern (or postmodern) ideas in literary, social, and philosophical theory. Landow, Haraway, Hayles, and others have written on this.

Two pillars support the emerging digital commons. The first is a **common technology framework** for sharing information provided by hypertext, HTML, XML, and the WWW. The second is a **common legal framework** for sharing information provided by open-access licenses.

Open-access takes its inspiration from the free software and open-source software movements, in which communities of programmers create software such as the Linux operating system, Apache web server, and Mozilla family of browsers and mail tools. When a community is successful, a high-quality piece of work emerges from the open development process, thanks to many hands to do the work, many eyes to conduct a constant peer review, and pride of authorship and contributions to the community.

The most important feature of Linux, however, was not technical but sociological. Until the Linux development, everyone believed that any software as complex as an operating system had to be developed in a carefully coordinated way by a relatively small, tightly-knit group of people. … Linux evolved in a completely different way. From nearly the beginning, it was rather casually hacked on by huge numbers of volunteers coordinating only through the Internet. Quality was maintained not by rigid standards or autocracy but by the naively simple strategy of releasing every week and getting feedback from hundreds of users within days, creating a sort of rapid Darwinian selection on the mutations introduced by developers. To the amazement of almost everyone, this worked quite well. … I expect the open-source movement to have essentially won its point about software within three to five years (that is, by 2003-05). … At that point it will become more appropriate to try to leverage open-source insights in wider domains. - [Raymond p. 194]?

In addition to a common framework for developing the software, what makes open-source software projects work is a common legal vocabulary for sharing software called an open-source license. The primal example is the **General Public License** (GPL) developed by Richard Stallman for the GNU project. Without the open-source license enabling anyone to use and modify the software, it would be impossible to build a community of programmers. For more, see the papers by Stallman, Raymond, Boyle, Lessig, and others.

To power the digital commons, a number of open-content licenses have been developed for information resources, the most applicable to our needs being the **Creative Commons** license. An open-licensed digital commons turns the current intellectual property regime of publishing on its head. Now, an author can retain their copyright to their work and license it non-exclusively for use in the digital commons via a Creative Commons license. This allows other authors to adapt, improve, or otherwise contribute to the work (for example, fixing broken hyperlinks that plague the WWW today). This can be carried to the extreme with an open-licensed wiki system. For example, in Wikipedia (wikipedia.org) \(^3\) anyone in the world can contribute and edit encyclopedia entries with a click in their browser.

### 1.6 Connexions: A Digital Commons for Teaching and Learning

*The real roles of the professor in an information-rich world will be not to provide information but to advise, guide, and encourage students wading through the deep waters of the information flood. Professors in this environment will thrive as mentors, tutors, backseat drivers, and coaches.*

- [O'Donnell, p. 156] [?]
To make things concrete, we now describe one particular experiment in this third wave of information technology targeted at education. Connexions (http://www.cnx.org\textsuperscript{4}) is so-called because it aims to connect information and ideas within the commons (using hypertext) and also to connect the people using the system into communities. Connexions is inter-disciplinary, inter-institutional and involves both professionals and amateurs, as well as professors, teachers, students, and the public.

Connexions is a digital commons of scholarly materials plus an open-source software toolkit to help authors publish and collaborate, instructors rapidly build and share custom courses, and learners explore the links among concepts, courses, and disciplines. The design of Connexions is based on a set of intuitions that are shared by a remarkably wide range of academics: that knowledge should be free and open to use and re-use; that collaboration should be easier, not harder; that people should get credit and kudos for contributing to research and education; and that concepts and ideas are linked in unusual and surprising ways and not just the simple linear forms that textbooks present.

Connexions creates “modules” of information—smallish documents intended to communicate one concept, one procedure, one set of questions about something. String a bunch of modules together, and you have a course, or weave a curriculum entirely of your choosing. Connexions directly challenges the current notion of a “textbook” by exploding it and asking different people to create its parts in a semi-structured but re-configurable manner, rather than having a single Maestro do it all and take all the credit.

The hallmarks of Connexions include:

- **collaborative workspaces** that support collaboration and community building throughout the authoring, course-building, and learning processes;
- **semantic content markup** in XML hypertext that provides a common technology framework for sharing and re-using materials;
- **Creative Commons licenses** that provide a common legal framework for using, modifying, and disseminating the content;
- **content quality assessment** using distributed, post-publication peer review;
- an attribution system to give credit to original authors and to those who add value.

Connexions is an inter-institutional endeavor. For example, a growing global community of electrical engineering faculty and researchers in the area of digital signal processing (DSP) from Rice University, University of Illinois, Georgia Tech, the University of Michigan, the Ohio State University, Polytechnic University, Cambridge University, Technical University of Norway, and the company National Instruments is collaboratively developing a free, open-access DSP course in Connexions.

Note that the Connexions system can be used in a distance education system, but that is not its main purpose. It is an information system that can be used instead of or in addition to a traditional book in a traditional class. It can also be used for self-study, distance education, continuing studies, home schooling, industrial training, or professional credentialing. The basic philosophy is completely independent of level or discipline. It should be ideal for K-12, college, or graduate school. It will fit humanities, social sciences, natural sciences, engineering, architecture, music, business, medicine, law, or art history. It should interface naturally with the modern digital library. It will certainly be multi-media and allow experiments and demonstrations to be run and “discovery based learning”, “problem-solving based learning”, and “concept based learning” to take place.

Connexions can make high quality material available to all students and all educational activities all over the world with fairly inexpensive equipment. If developed properly, it can significantly reduce the “digital divide” that separates the information “haves” from the “have-nots.” Because it is platform or hardware independent, it can be used with many new projects to provide internet access more broadly.

The third transition that we are in the middle of just now will probably have two phases, much as most disruptive technologies. As we move from the traditional printed book, lecture, laboratory, and library paradigm to an electronic and digital system using the web, internet, and modern magnetic and optical storage devices, the first phase will do the old job better. We will put our courses on the web. We will put our books on the web. We will scan books and build digital libraries. But, most of this material was

\footnote{http://www.cnx.org/}
written for traditional publication and use. It was written by authors with traditional skills and traditional
mind-sets but using modern tools and media.

The second phase of this transition will use the full power of semantic tagging, metadata, and XML
together with a better understanding of how humans process information in their brains and how we all
learn. In the first phase we take material that was created to be used in traditional media and put it “on the
web”. We put the book that we were writing into Connexions. We scan books and put the digital information
into the digital library. In the second phase we will create information packets specifically for Connexions,
XML, or the Semantic Web. We will have a mixture of text, virtual labs, demonstrations, etc. that cause
us to teach and our students to learn in a different way. That will, in turn, cause us to create material in a
different fashion.

In the transition from an oral tradition to literacy and a written tradition, the first phase was just a
better version of the old. Authors wrote down the stories that they earlier told. Readers read aloud to “hear”
the stories as they had before. As the technology of writing developed, people learned to read silently and
authors wrote to be read, not heard.

We currently seem to be in the middle of the first phase of our modern transition, but are beginning
to see an image of the second. Although there is a great temptation to jump to the end, we will probably
need the experiences and experiments of the first phase to best develop the second phase and minimize
the negative “unintended consequences”. We will need to put our books and articles into Connexions and
scan our traditional library books to create our digital library before we will know how to create material
specifically for digital use.

1.7 Conclusions

Daniel Headrick argues “that the information revolution in which we live is the result of a cultural change
that began roughly three centuries ago, a change as important as the political and industrial revolutions for
which the eighteenth and early nineteenth centuries are so well known.” We are now seeing this revolution
reach a climax.

From our studying and reading about writing, literacy, and the printing press, we have concluded that
we are indeed in the midst of a third major information transition that will be as important and startling
as the first two. We want to create a system or a setting in which this new world can flourish and be a
positive contribution to humanity. We want it to be as close to the way the mind works as possible, while
allowing future extensions beyond what we can now predict regarding new theories of learning, teaching,
and discovery, as well as new information technologies.

The Connexions Project has been designed to be sufficiently open and flexible to allow for these future
unknowns, yet specific enough to have standards for current implementation. The ability of XML to control
both form and content is essential to the spirit and future of Connexions. The modular format with hypertext
linking seems to fit the way the mind works, yet allows for future discoveries in cognitive science and learning
theory. The digital commons will allow input from top experts in any field and a post-review system will
allow identifying the best material without restricting input.

The current classroom lecture method used in schools, colleges, and training programs results in students’
having a difficult transition to self-learning. The use of Connexions could greatly reduce that transition. It
could be a true life-long learning system. This single system can be used for teaching, learning, and discovery
and be open to the invention of unpredictable new technologies. If these statements are true, we will indeed
have a third transition as important as those created by writing and the printing press.

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CHAPTER 1. THREE SPECIAL EVENTS IN THE HISTORY OF TECHNOLOGY FOR CREATING, ORGANIZING, AND SHARING INFORMATION

Reedstrom, Douglas Jones, and the staff of Connexions. For organizational planning, leadership, and financial support, we thank Robert Maxfield, William Sick, Burton McMurtry, Michael Stewart, Tom and Nancy Eubank, Chuck Henry, Geneva Henry, Gil Whitaker, Katie Cervinka, Malcolm Gillis, the administration of Rice University, and the Hewlett Foundation. For help in rewriting this paper, we thank several friends and colleagues. We also acknowledge and thank our collaborators at other universities and foundations in the US and all over the world and acknowledge our debt to many other similar and complimentary projects.

1.9 All References

For technical reasons, there are two reference sections in this paper. This first section is an extended reference list in text format in the approximate order in which they are relevant in the paper. The quoted references within the paper are repeated below this list under "References" so that links from the quotes to the references work.

17. Ilana Snyder, Hypertext: The Electronic Labyrinth, Melbourne, 1996
47. W. A. Wulf chair, “Choosing the Future: Information Technology and the Research University”, Report
CHAPTER 1. THREE SPECIAL EVENTS IN THE HISTORY OF TECHNOLOGY FOR CREATING, ORGANIZING, AND SHARING INFORMATION

from the ICT Project, published by the National Research Council. 2002.

A longer list of references is available from the authors.
Chapter 2

The Connexions Vision¹

NOTE: This module has been retired as it contained Connexions documentation which is no longer accurate and/or relevant. Please visit the help page² for up-to-date information about the Connexions website, including support for viewing and authoring content and the CNXML language. If you have any additional questions or cannot find the answer to your question, please contact techsupport@cnx.org² and we will be happy to assist in any way we can.

¹This content is available online at <http://cnx.org/content/m9009/2.11/>.
²http://cnx.org/help
³techsupport@cnx.org
Chapter 3

Jean-Claude Dauphin - UNESCO’s Activities in FOSS For Education, Past, Current and Future Activities

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.

3.1 I. Brief Summary of UNESCO’s activities in FOSS For Education

1. UNESCO, 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 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 - 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, 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 (GSDL) - UNESCO has produced with the New Zealand Digital Library Project (NZDL) of the University of Waikato (New Zealand) and the Human Info NGO
CHAPTER 3. JEAN-CLAUDE DAUPHIN - UNESCO’S ACTIVITIES IN FOSS FOR EDUCATION, PAST, CURRENT AND FUTURE ACTIVITIES

(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 2.7.0, 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 UNDP9, 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 Africa10 (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). 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 software11, IDAMS – statistical software12).

8. Two discussion forums organized by UNESCO IIEP13 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 IIEP14 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”15: 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 Network16 (IOSN) initiative, which aims to promote the choice of FOSS as affordable (yet effective) solutions for developing countries in the Asia-Pacific region.

9http://www.undp.org/
10http://www.fossfa.net/fossfa/front-page
11http://www.unesco.org/isis
12http://www.unesco.org/idams
13http://www.unesco.org/iiep/
14http://oerwiki.iiep-unesco.org/
16http://www.iosn.net/
3.2 UNESCO Activities envisaged and related to FOSS for Education

3.2.1 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.

3.2.2 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
   - 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/17)

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

3.2.3 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

17http://shibboleth.internet2.edu/
CHAPTER 3. JEAN-CLAUDE DAUPHIN - UNESCO’S ACTIVITIES IN FOSS FOR EDUCATION, PAST, CURRENT AND FUTURE ACTIVITIES

- 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).

3.2.4 Responses

6 Responses to “FLOSS, OER, Equality and Digital Inclusion”

3.2.4.1 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

3.2.4.2 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 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

3.2.4.3 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

3.2.4.4 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 ).
CHAPTER 3. JEAN-CLAUDE DAUPHIN - UNESCO’S ACTIVITIES IN FOSS FOR EDUCATION, PAST, CURRENT AND FUTURE ACTIVITIES

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 findings, 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

3.2.4.5 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
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-technical, 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
Chapter 4

Craig Perue - Introduction - Not IT, Not Business Processes, but Organizational Culture

4.1 Craig Perue - Introduction

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.

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1This content is available online at <http://cnx.org/content/m14751/1.7/>.
Chapter 5

Craig Perue - Not IT, not Business Processes, but Organizational Culture

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.

5.1 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.

5.2 A little background on the University of the West Indies

With three campuses - Cave Hill\(^2\) (in Barbados), Mona\(^3\) (in Jamaica) and St Augustine\(^4\) (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).

\(^1\)This content is available online at <http://cnx.org/content/m14749/1.10/>.
\(^2\)http://www.cavehill.uwi.edu/
\(^3\)http://www.mona.uwi.edu/
\(^4\)http://www.sta.uwi.edu/
5.3 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 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).
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. 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, for Our Virtual Learning Environment.

5.4 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), 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. The other was Nicholas Carr’s article “IT Doesn’t Matter” 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

\footnotesize{\textsuperscript{5}http://www.dec.uwi.edu/\textsuperscript{6}http://moodle.org/\textsuperscript{7}http://ourvle.mona.uwi.edu/\textsuperscript{8}http://en.wikipedia.org/wiki/FLOSS\textsuperscript{9}http://www.ihep.org/Pubs/PDF/Quality.pdf\textsuperscript{10}http://www.nicholasgcarr.com/articles/matter.html}
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.

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’ \footnote{http://blog.worldcampus.psu.edu/index.php/2007/03/12/ucla-selects-open-source-solution-part-2-interview-with-ruth-sabean/} 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.

5.5 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 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 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 architectured 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 their 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 using open-source, few clients raise the issue of the license type.

It is relatively straightforward 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.

<table>
<thead>
<tr>
<th>Installed</th>
<th>To Install</th>
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<tbody>
<tr>
<td>OSPI</td>
<td>OpenCRX</td>
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<tr>
<td>OJS</td>
<td>ProjectNet</td>
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<tr>
<td>Drupal</td>
<td>Alresco</td>
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<td>MediaWiki</td>
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<td>DSpace</td>
<td>MythTv</td>
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<td>Pentaho</td>
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<td>Red5</td>
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Table 5.1

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.

5.5.1 Responses

11 Responses to “Not IT, not Business Processes, but Organizational Culture”

5.5.1.1 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
CHAPTER 5. CRAIG PERUE - NOT IT, NOT BUSINESS PROCESSES, BUT ORGANIZATIONAL CULTURE

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

5.5.1.2 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) 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.

12http://www.opensource.org/docs/definition.php
I would also love to hear suggestions about business models that will support Universities that participate in open source teaching.

5.5.1.3 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

5.5.1.4 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?

5.5.1.5 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

5.5.1.6 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 be 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.

5.5.1.7 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

5.5.1.8 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?

5.5.1.9 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\textsuperscript{13}, ITIL\textsuperscript{14}, PMBOK\textsuperscript{15}) 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.

\textsuperscript{13}http://www.isaca.org/cobit.htm
\textsuperscript{14}http://www.itil.com/
\textsuperscript{15}http://www.pmi.org/
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- 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 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\textsuperscript{16}, by showing the clients respect, gaining their trust and working really hard to keep it.

Regards, Craig.

5.5.1.10 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\textsuperscript{17}), 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,

\textsuperscript{16}http://www.amazon.com/TRusted-Advisor-H-Mister/dp/0743212347

\textsuperscript{17}http://www.cio.com/article/31864/Portfolio_Management_Done_Right/4
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 end, 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 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\(^{18}\)). 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

5.5.11 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\(^{19}\) and TOGAF\(^{20}\), and new journals such as Microsoft’s

\(^{18}\)http://agilemanifesto.org/principles.html

\(^{19}\)http://www.isaca.org/valit

\(^{20}\)http://www.opengroup.org/togaf/
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The Architecture Journal\(^{21}\) 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.
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\(^{22}\) that came to our attention during the evaluation phase recommended ATutor\(^{23}\) and Ilias\(^{24}\) 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.

\(^{22}\)http://blog.worldcampus.psu.edu/http://www.col.org/colweb/webday/site/myjahiasite/shared/docs/03LMSOpenSource.pdf
\(^{23}\)http://www.atutor.ca/
\(^{24}\)http://www.ilias.de/ios/index-e.html
And finally, the values described sound very much like the principles of the Agile Manifesto (http://agilemanifesto.org/principles.html25). 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, 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 Toronto26, 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.

25http://agilemanifesto.org/principles.html
26http://tinyurl.com/28tsjk
CHAPTER 5. CRAIG PERUE - NOT IT, NOT BUSINESS PROCESSES, BUT ORGANIZATIONAL CULTURE
Chapter 6

Craig Perue - Summary Not IT, not Business Processes, but Organizational Culture

6.1 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 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).

6.2 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

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1This content is available online at <http://cnx.org/content/m14750/1.6/>.  
2http://www.mona.uwi.edu/  
Culture, Information Society Division, Communication and Information Sector, UNESCO, on June 27, 2007. The schedule for the series can be found on WikiEducator.\(^4\)
Chapter 7

Examples of NCPEA Connexions Modules

NOTE: This module has been peer-reviewed, accepted, and sanctioned by the National Council of Professors of Educational Administration (NCPEA) as a scholarly contribution to the knowledge base in educational administration.

Types of Modules: Examples

I. Annotated literature reviews should include: domain identification; author (of the review); key words; bibliographic citation in APA format (with the author’s first name); and description of the cited publication.

Example:

Domain Identification: School Law
Author: Louis Wildman
Key Words: equality, Brown v. Board of Education, integration, segregation
Description:

Kozol informs those who have forgotten Brown v. Board of Education (1954) that two million Black students attend schools in which 99 to 100 percent of students are nonwhite, which he calls “apartheid schools,” but which perversely are frequently actually named after Martin Luther King. Kozol calls upon this nation to reverse “the present pattern of intensifying segregation.” Having visited 60 schools in 30 districts in 11 different states, Kozol found that in the most calamitous apartheid settings that school principals have often been stampeded into enforcing a scripted didactic curriculum to bring short-term gains which middle-class white parents would never accept for their own children. Kozol warns America not to retreat into separate tribes.

II. Articles on key ideas and theories should include: domain identification; author (of the article); key words; key idea/theory; evidence (for the key idea/theory).

Example:

Domain Identification: Research Methods
Author: Louis Wildman

1This content is available online at <http://cnx.org/content/m14373/1.1/>. 
CHAPTER 7. EXAMPLES OF NCPEA CONNEXIONS MODULES

Key Words: coefficient of determination, poverty, family wealth, free and reduced price meals, correlation, API, socio-economic level, test scores

Key Idea/Theory:
The “coefficient of determination” is equal to the correlation squared. When multiplied by 100, the coefficient of determination becomes the percentage of the variance that is associated with, determined by, or accounted for by the variance.

For example, if the correlation between two variables (X and Y) is .5, and if a causal relationship between the two variables can be established, then the percentage of the variance in Y that is accounted for by the variance in X is 25, or one-fourth.

Application:
The “No Child Left Behind” Act requires an annual review of each school served. If adequate yearly progress by a school is not made for two consecutive years, the school is designated for “school improvement.” A school that continues to fail to achieve adequate yearly progress for two years after being designated for school improvement must be identified by the local education agency for “corrective action.” If after being designated for “corrective action” a school fails to make adequate yearly progress, the school is to be designated for “restructuring.”

Teaching or administering a school designated for “school improvement,” “corrective action,” or “restructuring” is professionally embarrassing. However, since both James Coleman (1966) and Christopher Jenks (1972) found that there is often a strong correlation between family wealth and student standardized achievement test scores, punishing low-achieving schools in economically poor neighborhoods is questionable at best.

Coleman collected data on 600,000 children in all fifty states. He noticed that there were large differences in school quality, and believed that this was because schools in the affluent suburbs were well financed, whereas schools in the inner cities were deteriorating. The Civil Rights Act of 1964 ordered the Commissioner of Education to investigate, and Coleman was asked to head the investigation. He predicted that it was the difference in the quality of schools that accounted for the difference in the academic achievement of the poor and minorities.

To his surprise, he found that non-school factors, particularly family background, accounted for the difference:

One implication stands out above all: That schools bring little influence to bear on a child’s achievement that is independent of his background and general social context; and that this very lack of an independent effect means that the inequalities imposed on children by their home, neighborhood, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school. (Coleman, 1966)

A subsequent large three-year study by Christopher Jenks confirmed Coleman’s findings. (Jenks, 1972)

Additional Evidence:
Given the findings of Coleman and Jenks, here is additional evidence, utilizing data from high schools in Kern County (California):

<table>
<thead>
<tr>
<th>High School</th>
<th>2006 California Academic Performance Index</th>
<th>2006 Percentage of Students Qualifying for Free and Reduced Meals</th>
</tr>
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</table>

continued on next page
<table>
<thead>
<tr>
<th>School</th>
<th>Score</th>
<th>% Qualifying Free/Reduced Meals</th>
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<tr>
<td>Stockdale High</td>
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<tr>
<td>Burroughs High</td>
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<tr>
<td>Desert High</td>
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<td>Liberty High</td>
<td>710</td>
<td>9.1</td>
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<tr>
<td>Tehachapi High</td>
<td>708</td>
<td>25.9</td>
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<tr>
<td>Frazier Mountain High</td>
<td>699</td>
<td>37.3</td>
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<tr>
<td>Kern Valley High</td>
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</tr>
<tr>
<td>Centennial High</td>
<td>694</td>
<td>22.6</td>
</tr>
<tr>
<td>Bakersfield High</td>
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</tr>
<tr>
<td>Boron High</td>
<td>668</td>
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<td>Delano High</td>
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<td>Ridgeview High</td>
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<tr>
<td>Chavez High</td>
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<td>North High</td>
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<td>Rosamond High</td>
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<td>Mojave High</td>
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<td>54.8</td>
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<tr>
<td>Shafter High</td>
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<td>Taft High</td>
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<td>Highland High</td>
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<tr>
<td>West High</td>
<td>634</td>
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<tr>
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<td>Wasco High</td>
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<td>Arvin High</td>
<td>600</td>
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<td>62.3</td>
</tr>
<tr>
<td>East Bakersfield High</td>
<td>592</td>
<td>55.7</td>
</tr>
</tbody>
</table>

Table 7.1

The correlation between these two variables is -.812 (Notice that this inverse relationship is not perfect, in which case the correlation would have been -1.00, but very close.) Squaring this correlation coefficient allows one to compute the coefficient of determination. In this case the coefficient of determination is .6592. Multiplying by 100 (and rounding), this suggests that about 66% of the variability in the achievement test scores is strongly related to family wealth. High scoring schools have a low percentage of students qualifying for free and reduced price meals, whereas low scoring schools have a high percentage of students qualifying for free and reduced price meals.

This implies that family wealth—a variable not controlled by educators—is having a large impact on student achievement test scores. It suggests that improving student academic achievement in impoverished areas is, and will be, very difficult.

References


III. Instructional modules should include: domain identification; title; author; key words; lesson abstract/objectives; the lesson; references.

Example #1:
Domain Identification: Educational Leadership
Title: Vision
Author: Louis Wildman
Key Words: vision, educational administration preparation, ISLLC Standard #1
Lesson Abstract/Objectives:
Why identify a vision; examples of educational visions; a theory concerning the visions of teachers and administrators; the “down-side” of the vision concept; and ways to develop a vision.

The Lesson:
Why identify a vision?
Mark Hanson (Hanson, 1996) recounts an old story about the Englishman visiting Rome for the first time, who, as he strolled through the ancient boulevards of that eternal city, came upon three workmen laboring over a patch of stone and concrete. With his curiosity aroused, the foreigner approached the first worker and asked him what he was doing. “I’m breaking my back for a lousy 475 lira an hour.” Undaunted, the Englishman turned to the second worker and asked the same question. “I’m putting up bricks for a big wall.” When the question was posed to the final worker, he looked up for a moment before replying and said, “I’m building a cathedral.”

Presumably the last worker is living a more satisfying life and probably doing a better job, with his noble vision in mind.

The first Interstate School Licensure Consortium (ISLLC) Standard for School Leaders is:
A school administrator is an educational leader who promotes the success of all students by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by the school community.

Peterson and Deal (1998) find that schools that have strong, positive cultures have a shared vision. They say that these are schools:
* where staff have a shared sense of purpose, where they pour their hearts into teaching;
* where the underlying norms are of collegiality, improvement, and hard work;
* where rituals and traditions celebrate student accomplishment, teacher innovation, and parental commitment;
* where the informal network of storytellers, heroes, and heroines provides a social web of information, support, and history; and
* where success, joy, and humor abound.

Brown and Moffett describe the role of vision as follows:
1. Vision functions as an invisible energy field that permeates organizational space, influencing everyone who comes in contact with it.
2. Vision building is an expression of hope. Vision is an act of faith, in the midst of the doubt that surrounds us, that we can imagine and create a better future for our children.
3. Vision is an expression of organizational and personal courage. When we articulate a vision we know who we are, what we stand for, and why we are here. We become fearlessly open with our values and beliefs.
5. Vision building is an open-ended, dynamic process. Our visions for the future are not set in stone. As we act and learn from our actions, our visions will evolve, mature and grow.
6. Visions need to be developed collaboratively. Without the involvement of everyone in the school community, our visions become mandates without meaning. Our stakeholders feel discounted and marginalized. The result is a lack of understanding and commitment from those whose support we need most.
7. The enactment of the vision requires personal responsibility.

The Bible says that “Where there is no vision, the people perish.” (Proverbs 29:18)

Examples of Educational Visions:
Upon being appointed superintendent/principal of a small, remote K-12 school district in western Washington, the board asked me for my vision. I envisioned a small learning community where everyone was trying to learn; where there were frequent discussions and projects which would benefit all. My vision recognized that students and teachers have worthwhile purposes. Students would learn by doing, trying, and modeling. The people would be friendly—sometimes playing together; more often working together for each other. The members of this learning community would try to educate themselves for responsible caring about each other.

For the professionals, the work would be more than a job: a higher calling, a dedication of one’s life. The atmosphere would be conducive to learning and the pursuit of knowledge. The members of the learning community would develop common bonds of trust; the curriculum would model the best we know—a separation from careless ways, toward a higher level of insight and deeper sense of purpose. The members would seek a balanced curriculum of physical, intellectual and artistic habits. The teaching process would involve appreciating, valuing, and studying together, characterized by kindness toward one another, consideration, and cooperation—in a beautiful place: in a place for quiet thought, but not isolated from worldly concerns. This place would be continually evolving; a place where the faculty not only tries to teach students to do things, but also to help them understand what they are doing.

In sum, it would be a small, friendly, learning community with a few students and teachers, striving for excellence, cooperating, helping each other learn, sharing joys and hardships, and studying together. It would never be a completed task, but an adventure for all.

A few years later, as superintendent of a larger school district, parents, faculty and the community as a whole developed the following vision: We started with the motto, “Public Education with a Personal Touch.” Then we listed the ideals we would work for:

1. Strong basic education for good citizenship.
2. Encouragement of initiative.
3. Being responsive to student needs and parent desires.
4. School staff, students and parents working and learning together.
5. Greater utilization of the school facilities by the community.

We said, “This is your school district whether you have students here or not. The schools are for the community, and this community promotes it’s schools.”

Stanford Professor Linda Darling-Hammond has said:

America needs schools that provide engaging successful education for all students—education that helps them locate who they are and how they can make a contribution to the world—that stretches them to achieve very high standards yet affirms their basic humanity and right to pursue what matters most to them. (1997)

Principal Erlinda Griffin describes the vision for Ezequiel A. Balderas Elementary School in Fresno, California:

... We want our students to learn several times faster than they ordinarily would under traditional conditions. We also want our students to be ethical individuals who care about other human beings, who care deeply about their roots, who want to hold on to their native language (Hmong, Khmer, Lao, Mien, Lalu, Vietnamese, Punjabi, African American, Native American), and who want to preserve the natural beauty of their environment and planet. In order to achieve our vision, we know that we must have the zeal of the missionary and the dedication of people with a cause. Our cause is to nurture our students in the best possible manner in the best possible environment in order to insure their successful graduation from the 12th grade. As learners and explorers our staff is dedicated to learning and continuous improvement. ...

Here is the vision of the Bakersfield (California) City School District:

1. Students will achieve academic success through a rigorous and innovative instructional program so that all students can become lifelong learners in a technological, global society.
2. Develop a process for staff selection and development to ensure an enthusiastic, competent, child-centered team who shares the district vision of academic success.
3. Recognize, understand, and appreciate cultural diversities in staff, students, and community.
4. Increase positive self-esteem, personal and social responsibility, in order to reduce discipline problems and maintain a safe learning environment.
5. Increase parental/community support and involvement.
6. Promote site-based management with district trust, support, and appropriate resources. Enhance principal authority and accountability through decentralization/site-based management.
7. Continue improving facilities and providing resources while maintaining economic stability.
8. Restructure collective bargaining to be a collaborative process.

Principal Lucy Sprague Mitchell has written a “credo” for the Bank Street School for Children in New York:

What potentialities in human beings—children, teachers, and ourselves—do we want to see develop?
* A zest for living that comes from taking in the world with all five senses alert.
* Lively intellectual curiosities that turn the world into an exciting laboratory and keep one ever a learner.
* Flexibility when confronted with change and ability to relinquish patterns that no longer fit the present.
* The courage to work, unafraid and efficiently, in a world of new needs, new problems, and new ideas.
* Gentleness combined with justice in passing judgments on other human beings.
* Sensitivity, not only to the external formal rights of the “other fellow,” but to him as another human being seeking a good life through his own standards.
* A striving to live democratically, in and out of schools, as the best way to advance our concept of democracy.
* Our credo demands ethical standards as well as scientific attitudes.
* Our work is based on the faith that human beings can improve the society they have created.

A Theory Concerning the Visions of Teachers and Principals:
The vision of principals is usually broader than the vision of teachers, and, contrary to recommended administrative practice (Cotton, 2003), often quite different.

For the past several years, graduate students in the California State University—Bakersfield Educational Administration Program have been asked to interview separately a principal and a teacher in the same school, and ask them about their vision for the school. For example, a series of interviews were conducted in November and December of 2005. In 82% of the pairs, the principal’s vision was broader than the teacher’s vision, which often focused on classroom-related issues. And, despite much advice that encourages teachers and administrators to develop and hold similar, if not the same vision in order to focus a team effort, these interviews consistently (85%) found that principals and teachers have quite different visions.

This assignment has two purposes: First, it is utilized to help teachers transition to attain a broader vision typical of school administrators. Second, it is utilized to help local school administrators reflect upon their vision. When graduate students started asking local administrators in this region about their vision a decade ago, it was not unusual to find that principals had not thought about a school vision. They didn’t have a clear notion of what they were trying to achieve. In recent years, graduate students report that administrators have a vision, but it doesn’t often coincide with the vision of the sampled teacher in that same school. The teacher and principal don’t share a common vision; they don’t appear as though they are on the same team.

Recently, all too often, administrators have said that their sole vision is to improve student test scores. Here is a representative portion of one graduate student’s report:

I interviewed two people, currently working in the field of education in the Los Angeles Unified School District. Ms. B is a fifth grade teacher and Mrs. A is a principal.

Ms. B has changed. I have known her since she came to this elementary school three years ago. I chose to interview her because of the distinct changes I have seen in her attitude, energy, and morale. When I first met Ms. B she had so much energy that it could be felt when speaking with her. She spoke directly and often of her vision for education and more specifically our school. Social justice was her cause, and the children were her inspiration.

This elementary school in south-central Los Angeles is a tough school. In my nine years of teaching there I have seen several new teachers come and go. Exhausted and defeated, these teachers left the school confused and crestfallen, their inspiration turned on them. This is where Ms. B seems to be now. While interviewing Ms. B, I learned that she is very close to quitting. She told me, “I don’t know if I can finish out the year.” She continued, “these kids don’t want to learn, I can’t teach them if they don’t want to learn.”
When she said that, I knew that she had lost sight of what inspired her. She lost her connection to her students.

I told Ms. B that I was going to be asking questions about her vision for education and her ideal school. She chuckled and whispered, “I hope I can find it.” She pulled out a portfolio she had put together as a master’s student at UCLA’s School of Education. Ms. B has what I would call a stirring vision statement. She speaks of inclusion and multiculturalism, and described a school that would grow into a “community within itself.” She went on to profess that in her vision of a great school “Every child will learn, and seize their right to be educated.” Her passion was conspicuous and her vision was clear. I asked her if she had taken this paper out since she had been here. She looked down, and said “nope.”

I asked her to explain to me how she thinks her vision has changed since her first year of teaching. She explained to me that she had never intended to let her vision statement become a “dust collector.” More importantly, she remembered that when she designed and put together her vision statement she had told herself that she would share it with her students, her inspiration. “My vision hasn’t changed, “I’ve changed,” she said. “I have let myself be defeated.” Ms. B continued to explain to me that the administration at this elementary school is concerned with one thing, test scores. Everything else is less important than “improving test scores.” She went on to say that she feels threatened when she does not fall in line with Mrs. A’s programs for improvement. “I’m not who I was when I came here, I can’t be.” Almost defeated she shared again, “If I tried to teach the way UCLA taught me how to teach, they’d fire me.”

Mrs. A has been at this elementary school as long as Ms. B. They both came three years ago, and they both came clear-headed and ready to work. Mrs. A has a drive that seems almost unstoppable. She told me very frankly when we started the interview, “my inspiration comes from not wanting to lose my job, period!”

I asked her to tell me about her vision. Mrs. A’s vision is tied to the school’s test scores. She described her vision in percentile rankings and “AYP points.”

While we were sitting in her office, my eyes must have drifted around the room; her desk was cluttered; and Mrs. A apologized for “the mess,” and grabbed one of the stapled stacks of papers from in front of her. Mrs. A said, “This is all I can see,” explaining that what she was holding were the third grade CST and Star test results from last year. She went on, clutching the papers in front of her, and said, “If I don’t get these scores up the state’s gonna come and take over.”

Mrs. A spoke frankly with me, and explained that she was “here to do a job,” and that job according to her is to get this elementary school out of the state monitoring system. I asked her if she had a vision for what her ideal elementary school would be like. Again she spoke candidly, and said, “My vision is higher test scores.” Mrs. A did not have a vision she could show me, her vision was alive in her mind. Her vision was of losing her job if she doesn’t bring her school’s test scores up.

During the first ten minutes of our interview she did not mention the words “student” or “teacher.” This struck me later while listening to the taped recording of our conversation. She was able to tell me about her vision, without pause. When all was said and done Mrs. A had uttered the word “student” three times. She mentioned “teachers” seven times, and the “test” word was declared 53 times.

Both Ms. B and Mrs. A spoke quite a bit about tests and test scores. However, Ms. B never mentioned test scores as being an integral part of her vision, nor was it mentioned in her written vision statement. She told me repeatedly that they “want us to teach to the test,” they want “automatons” she said facetiously. Conversely, Mrs. A states that her inspiration is “not losing my job” and her vision is “higher test scores.” Even though Ms. B had nearly lost sight of her vision she can be reminded of why she chose to teach when she looks at her recently posted vision statement on her classroom wall. Ms. B emphatically stated “I’m here for the kids, I just need to remember that and stand up for them and myself.” . . .

The “Down-side” of the Vision Concept:

When expectations are raised,. It is very difficult to change the organization fast enough to meet those expectations. Wilbur Brookover (1979) found that faculty members in schools that were undergoing improvements were more dissatisfied than faculty members in schools that were not improving. As Carl Glickman (1990) observed, “The more an empowered school improves, the more apparent it is that there’s more to be improved.” Or, as Abraham Zaleznik (1989) found, “An individual’s satisfaction varies directly with the amount of reward received and inversely with the amount of reward expected.” This is why administration
CHAPTER 7. EXAMPLES OF NCPEA CONNEXIONS MODULES

tends to be such a conservative activity.

Ways to Develop a Vision:
1. Study the community: student achievement scores, community demographic data, history of the community/school district (including the heroes, ceremonies, stories, and myths), city/county/state planning office data, and Chamber of Commerce forecasts and economic data, and talk with the mayor/city council regarding their vision.
2. Try out various metaphors for their potential usefulness in describing a desirable future: the school as a family; the school as a corporation; the school as a ship; etc.
3. Involve constituent groups around the questions: “What happens?” “What matters?” and “What matters most?” What do you feel passionate about?” “What have you dedicated your life to doing?” In Edina, Minnesota, the suicide of a superintendent prompted Ray Smyth, the successor, to challenge the district to “figure out what we stand for.” Smyth convened committees of parents, students, custodians, teachers, food service workers, bus drivers, administrators—anyone in the community with a vested interest in education. Later, a smaller committee condensed input from the diverse groups and distributed a short list to each school. The schools sent the list home to parents for their reactions. (Deal, 1990)
4. Reflect on the current vision: “To what extent does the school community share a common vision?” “To what extent does the current school vision guide and inform decision-making and problem-solving?” “To what extent are current practices at odds with the current vision?” “How are the institution's values communicated?” “How does the organization engage in inquiry to intentionally improve?”
5. Re-examine the great educational ideals: a focus on understanding; acquiring the basic tools for learning; the vocabulary of the academic disciplines; vocational competence; preparation for citizenship; life-long learning; physical and mental health.

References:
Example #2:
Domain Identification: Curriculum
Title: The Integrative Model
Author: Louis Wildman
Key Words: integrative model, curriculum supervision, consistency, educational philosophy
Lesson Abstract/Objectives:
The integrative model is an analytic tool for curriculum supervision, for analyzing consistency between philosophy, theory and practice, and for comparing the thinking of differing educators.
The Lesson:
What is curriculum supervision?
Curriculum supervision is a supervisory process to establish consistency between the philosophy which supports the school and the curriculum which is actually learned.
Examples:
A Catholic school teaches that the Pope is the supreme interpreter of religious doctrine, as the direct descendent of St. Peter. (Here there is consistency between Catholic theology and school content.)

An Episcopal Church school teaches that the Pope is not the supreme interpreter of religious doctrine. (Here there is consistency between Episcopal Church theology and school content.)

An Evangelical religious school teaches the literal interpretation of the Bible. (Here there is consistency between Evangelical theology and school content.)

A public school admits all students, regardless of their race, religion, or economic circumstance. (Here there is consistency between democratic beliefs and school admission practices.)

Philosophy does make a difference:

Provide alternative answers to the following questions, based upon differing philosophical premises:
1. What are the most important purposes of schools and schooling?
2. What roles should graduates be prepared to perform?
3. What economic and social future do you desire?

Having provided alternative answers to those questions, what differing philosophical positions are revealed in the answers?

The Integrative Model:

The outline in Figure #1 can be utilized to examine consistency between philosophy, theory, and practice. The "philosophical" part of the model asks such questions as "What is the nature of being or reality?" (metaphysics) and "What is the nature of goodness?" (ethics) These are all questions that students study as undergraduates. They are part of a liberal arts education.

Table 7.2

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<th>Philosophy</th>
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<th>Practice</th>
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</tbody>
</table>

The "theory" part of the model asks such questions as "What do we know about learning?" and "What social needs exist?" These are questions that students meet in schools of education in preparation to become teachers.

The "practice" part of the model asks "What content is being taught?" and "What teaching method is being used?" These are questions that pertain to the reality of what is happening in schools.

The job of a curriculum coordinator is essentially the job of bringing about consistency between philosophy, theory, and practice. Hence a curriculum coordinator working within a public school would want to bring about consistency with democratic philosophy.

Discussion:
1. Review the definitions of the branches of philosophy (metaphysics, epistemology, logic, ethics, political philosophy, and aesthetics) and discuss exemplary alternative beliefs in each area.
2. To become acquainted with the use of the integrative model, discuss what philosophical views, theories, and practices would be consistent with:
   A. Grading on the curve
   B. Mastery learning
   C. Cooperative learning
   D. The school as a "factory"
CHAPTER 7. EXAMPLES OF NCPEA CONNEXIONS MODULES

E. Constructivism
G. Tracking
H. Teaching “creationism”
I. Teaching “evolution”
J. The “Great Books Curriculum”
K. Socratic dialogue
L. A national curriculum

3. Use the integrative model to outline your basic philosophical and educational beliefs. Then indicate how your beliefs would change if you agreed:
   A. with the Buddhist tradition: “To perfect oneself, you should be generous and help one another.”
   B. with Aristotle: “All men by nature are actuated with a desire for knowledge.”
   C. that dancing is sinful.

The Two Purposes of the Integrative Model:
The integrative model has two purposes:
1. To provide a framework to examine consistency between philosophy, theory, and practice.
2. To facilitate comparison between differing educators.

Assignment:
Use the integrative model to outline the philosophical, theoretical, and recommended practice of Mortimer Adler, as described in his Paideia Proposal (1982). (New York: MacMillan Publishing Co.)

Evaluation:
Apply the integrative model in analyzing the following paragraphs as a whole:

God created heaven and earth. God reveals his purposes and rules for us in the Bible, which should be read literally to gain knowledge, for human reason leads us astray since Adam ate the apple in the Garden of Eden. The Bible contains the knowledge we need.

Christ said, “Render unto Caesar . . .” Thus we should accept existing, legitimate authority, and praise Him through music and the other fine arts which draw our attention to the Lord. Only religiously oriented music is truly beautiful. Other art is distracting and to varying degrees, sinful.

The exercise of strong adult control over children and adolescents is very important. In effective schools, adults are unquestionably in control. Fair, firm, and appropriate discipline is applied. “He who spares the rod hateth his son . . . .” (Proverbs 13:24) “Foolishness is bound in the heart of a child; but the rod of correction shall drive it far from him.” (Proverbs 22:15)

Effective schools require pupil discipline, affirm good conduct, and treat learning, drill, homework, and grades as important. Thereby students are trained in the basic skills of reading, writing, arithmetic, and history.

The persistence of a society over a long time proves its adaptability and strength. When such conditions exist, change should be approached with great caution. While leaders must lead and followers must follow, only the good should be rewarded and the bad must be consistently and speedily punished.

Answer Key:
1. Metaphysics: God centered.
2. Epistemology: Knowledge comes from the Bible. Human knowledge leads us astray.
3. Logic: “Definitional” or syllogistic logic. (Leaders, lead; followers, follow.)
6. Aesthetics: Art which praises the Lord.
7. Organized Knowledge: Centered in the Bible.
8. Learning and Growth: Requires strong adult control. (Spare the rod; spoil the child.)
9. Social Needs: We need strong adult control over children.
10. Content: Reading, writing, arithmetic and history.
11. Teaching Method: Heavy emphasis upon student discipline; affirmation of good student conduct; and drill and training, reinforced with homework, and monitored by grades.

Assignment:
Read Anne Cassebaum’s article, “Revisiting Summerhill” (Kappan, April 2003, p. 575-578). Use the following components of the integrative model to analyze Summerhill:
(a) ethics
(b) political philosophy
(c) aesthetics
(d) learning and growth
(e) social needs
(f) teaching method
(g) setting

Answer Key:
Philosophy
Ethics: based upon personal happiness
Political Philosophy: democracy: everyone, including students and teachers, has an equal vote. Communal values.
Aesthetics: “funky” grubbiness. Creative objects more important than general cleanliness and order.

Figure 2

<table>
<thead>
<tr>
<th>Philosophy———[U+F0E0]</th>
<th>Theory———[U+F0E0]</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Philosophy: democracy. Everyone, including students and teachers, has an equal vote. Communal Values.</td>
<td>Social Needs: independent learners who care about the community.</td>
<td>Setting/Materials: students may or may not attend classes. Flexible class times; small classes. Live-in situation.</td>
</tr>
<tr>
<td>Aesthetics: “funky” Grubbiness. Creative objectives more important than general cleanliness and order.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.3

IV. Case studies, simulations, multimedia should include: domain identification; author; key words; title; context/trigger event; analysis/possible causes; problem solving/goals of action/planned solution; result.
Example:
Domain Identification: Site-based Leadership
Author: Louis Wildman
Key Words: school-community relations, principalship, parent complaints, extra-curricular activities
Title: Parent complains to principal about choral music
Context/trigger Event: Principal received letter from a parent objecting to music being rehearsed by the high school chorus.
CHAPTER 7. EXAMPLES OF NCPEA CONNEXIONS MODULES

Nature of the Problem: The parent is concerned that their son is learning “incorrect” English, by singing Negro spirituals in the high school chorus, such such verse lines as “John, John, wid de holy order, Sittin’ on de golden order.”

Analysis/possible Causes (school-based): Great pressure has been placed on students to improve their writing.

Analysis/Possible Causes (self-based): The family has demonstrated an intolerance for people of different cultures, and a strong preference for “certainty” in a variety of areas, ranging from a desire to know a day in advance as to whether the school would or would not be closed for a “snow day,” to a desire for more specificity regarding how students would be graded.

Additional Information: This school is located in an economically poor and a politically conservative area. There is a high rate of unemployment and there are very few college educated parents. Most adults just have a high school education.

Problem Solving/Goals of Action:
1. Help parents understand the benefits to their son in being part of the school chorus, including the benefits of learning about different cultures.
2. Make sure the parents understand that they can choose to withdraw their son from the school chorus.
3. Improve the educational level of the community.

Planned Solution:
1. Invite the parents to a meeting involving the school music teacher, a counselor, and the principal.
2. Encourage the regional community college to offer more local college courses.
3. Talk with the school music teacher about ways to improve multi-cultural understanding within the music courses and, through various performances, within the community.

Time Line:
1. Schedule parent/music teacher/principal meetings within one week.
2. Talk with the school district superintendent about allowing the local community college to utilize high school space for evening and weekend college classes.
3. Call the president of the regional community college within the next two weeks to encourage local college offerings and to offer classroom space.
4. Talk with school music teacher at next regularly scheduled teacher evaluation pre-observation conference.

Key Events:
11/4 Received letter from parents.
11/5 Called parents to organize parent/music teacher/counselor/principal meeting
11/10 Parent/music teacher/counselor/principal meeting
11/10 Discussed offering space to regional community college with superintendent.
11/11 Spoke with president of the regional community college. He will decide whether to accept our offer by the end of December.
12/5 Spoke with school music teacher about the role the school music program could play in increasing multi-cultural understanding. He will teach his students about the cultural background of the music they perform, and include pertinent explanation in a series of local performances to various service organizations.

Result:
1. Parents have decided to remove their son from the school chorus and transfer him to an auto-shop course.
2. The regional community college president has decided to advertise and offer more general education courses on the high school campus.
3. The high school chorus will perform for the Rotary, the Elks, and the community Chamber of Commerce yet this school year.

Further Reflections:
Even though the parents decided to remove the student from the school chorus, this request prompted other events which will have a positive impact upon the school and community.

V. Practitioner stories should include: domain identification; author; key words; title; story.
My first superintendency was actually a superintendency/principalship in a tiny, remote school district in the Coast Range of Washington State. While I advertised for teachers in the major city newspapers throughout the United States, and recruited some excellent teachers who were attracted to this unique location with a special small-school vision, one year I still had difficulty filling two high school teaching positions.

After having made a good-faith effort to find credentialed candidates, I decided to exercise my authority as superintendent and grant emergency certification to two individuals who otherwise seemed qualified. One young lady had just graduated from Yale University, and the other was a middle aged man who almost had counseling and English certification, and I needed to fill a joint position.

As the school year started, soon I began to hear reports about these two individuals. The Yale University graduate knew her subject. She was soon doing splendid work with the brightest students, but in public education we need to educate all students. She apparently didn’t recognize this, as she had not taken any courses in the foundation of American education. She did not recognize that our democracy depends upon an educated citizenry, not just the education of an elite group. She didn’t have the needed patience to work with the slower and average students, so resigned in December.

The part-time English teacher and part-time counselor also secured a position as the local community church pastor. Naively, I thought that would be a good combination.

Unfortunately, problems started to surface when I found out that this individual had many suspicions. He suspected that female students were carrying drugs in their purses; he suspected that students were carrying drugs in their lunch sacks. His suspicions, which evidently were consistent with his religious beliefs, consistently portrayed students as having evil intentions, and this attitude was quickly dampening school spirit.

Within just a few weeks, the situation came to a head when he asked to meet with the school board. They reluctantly agreed, and in an executive session listened to him berate the teachers, their neighbors, and myself. As the evening got late, the school board adjourned, and agreed to continue the meeting the following night.

That next morning, I met with this individual and told him what I would be telling the board that evening—pointing out the falsehoods and misinterpretations which he had conveyed. By noon, he handed me his resignation, which the school board accepted that evening. But then he stayed on as community church pastor, frequently mentioning the godless public elementary and high school in his sermons.

So now I had a major public relations problem, that is, until the church vestry discovered that this individual was attempting to put the deed for the church property into his own name! The church vestry then fired this minister, and I was no longer in trouble with the church members.

Through these two experiences, I gained greater respect for the credentialing process. Credentialing protects the profession and it also protects the public. It protects the profession by not allowing just anyone to teach. It protects the public by requiring teachers to understand the nature of public education; to understand learning, growth and development; to have studied teaching methodology within their subject; and to have demonstrated that they can teach in a student teaching setting.

These two individuals were not fully certified, and in my judgment, they probably would not have attained certification.

Obviously, certification is not a perfect guarantee that a candidate will be a successful teacher. However, I have much more respect for the certification process now than I had initially as a beginning superintendent.

VI. Performance assessments (evaluation items) should include: domain identification; author; key words; evaluation item; answer.

Example #1:
Domain Identification: Learning theory
EXAMPLES OF NCPEA CONNEXIONS MODULES

Author: Louis Wildman
Key Words: behaviorism, cognitive learning theory
Evaluation Item:
a. A hungry rat was placed in a maze and given time to explore the various pathways and discover that rat food was available at a certain spot in the maze. A gate was then lowered to block one of the pathways to the rat food, but the experimenter soon found that the rat would then choose the correct detour to get to the food. This experiment demonstrates which of the following learning theories?
   (1) Behaviorism
   X (2) Cognitive Learning Theory
   (3) Maslow’s Humanistic Theory
b. What is the main criticism B.F. Skinner would have of cognitive learning theory? Answer: To say that one behaved in a certain way because of what one thought is inadequate because it lacks a measurable account of what determines thinking.
c. For the
   (1) constructivists
   X (2) behaviorists
   Complex learning outcomes are best achieved by breaking-down complex tasks into smaller sub-tasks, then chaining these sub-tasks together through scope and sequence planning.
d. Contrast how you would develop curriculum for the teaching of “map reading for direction giving” to sixth graders from a behaviorist vs. a cognitive perspective.
   Answer: A cognitive approach would start with a conceptual view; a behaviorist would likely start by teaching specific examples of direction giving.

Example #2:
Domain Identification: Historical/Philosophical Foundations
Author: Louis Wildman
Key Words: educational policy, values, educational philosophy, perennialism, pragmatism
Evaluation Item:
a. At the heart of many educational policy debates are four widely held but conflicting values: equity, excellence, efficiency, and individual liberty. Fill in the blanks, citing one of these four values:
   (1) Benjamin Franklin’s lessons of thrift and getting one’s money’s worth, stressed __efficiency__.
   (2) A Nation At Risk emphasized the need to attain ____excellence____.
   (3) President Johnson’s “Great Society” stressed ____equity____.
b. Based on the following descriptions of two school programs, determine what the dominant philosophy operating in each school is, and write a brief rationale for your choice.
   (1) At the University Academy, we stress the great ideas from literature and history. We have few frills here in the way of competitive sports or vocational programs. We take great pride in the ability of students to articulate thoughts both in spoken language and in written work, and in their admission to the finest universities.
   Answer: Perennialism. Some knowledge is eternally valid. Education cultivates the intellect.
   (2) At Rosemont School, we stress the practical nature of an education to equip students to solve problems, particularly social problems. Therefore, we emphasize the scientific method and those areas of the curriculum that encourage students to analyze situations and find solutions to problems.
   Answer: Pragmatism. Knowledge is what works.

VII. Related web sites should include: domain identification; author; key words; url; description of web site.
Example:
Domain Identification: Educational Leadership Preparation Programs
Author: Louis Wildman
Key Words: professional preparation, education of educational administrators, training, staff development
URL: http://www.tc.umn.edu/~mcleod/edadminwebsites.html
VIII. Opinion pieces should include: domain identification; author; key words; title; opinion.
Example:
Domain Identification: School Law
Author: Louis Wildman
Key Words: No Child Left Behind, NCLB, federal role
Title: What do you think of the “No Child Left Behind” (NCLB) Act?
Opinion:
As a professor of educational administration, I see some positive features of the NCLB Act, but more negative consequences. First the positive:
The NCLB Act emphasizes the need to educate all, regardless of race/ethnicity, income, disability, or primary language. This is a noble ideal: democracy does require an educated citizenry. However, educated citizens must learn to participate in government, and not just do what they are told. One problem with the NCLB Act is that it puts too much emphasis upon students learning “what they are told” in terms of state-defined standards, and not enough emphasis on helping students get prepared for active citizenship.

Education partly teaches what we want to teach the next generation (conserving the past), and partly develops student talent, abilities, and creativity (opening the way for change). In other words, on the one hand we want to teach students the “basics,” and on the other hand we want to help each child develop their unique talents and abilities.

The best way to efficiently undertake the first part is to clearly identify the standards to be taught, teach them, evaluate whether they were learned, and, if they were not learned, try other teaching methods until mastery is achieved. The NCLB Act has placed more emphasis upon this procedure in the areas of reading and math than ever before, and that is good.

The bad part is that the NCLB legislation has narrowed the curriculum to reading, math, and little more. Offerings in such areas as the arts, social studies, and the sciences are being dropped from the curriculum, as well-intentioned teachers and administrators try to meet the minimum-competency high-stakes standardized test “accountability” goals. Many test-pressured teachers are actually being told to not teach anything that won’t be tested. In some of the larger school districts, all teachers teaching the same grade are being told to present scripted lessons following a pre-determined year-long day-specific schedule, regardless of how well the students are learning the material. They are being told to conduct score-boosting activities using test-preparation techniques of dubious educational merit which soon sap any pleasure students might otherwise derive from school, turning our public schools into test-prep centers. And, tragically, the developmental side of education—involving those memorable investigatory projects which stimulate creativity and encourage students to start taking over more responsibility for their own education—has been virtually eliminated from the elementary schools. Hence, at the very time when our economy depends upon our creativity, and our democratic processes depend upon individual initiative and responsibility, the school curriculum is cutting out this larger side of education.

Here in California, incredibly, there are over 3,000 state standards. This is far too many. That number should be greatly reduced, and then the students should be tested on those vitally important, key standards. However, this is not the kind of test which is presently being utilized.

What we now have are tests which compare students with each other, so that we get “ranking” reports, comparing one school with another. Since the ranking of schools is largely a function of the economic status of the families in that school, and since everywhere except in Garrison Keeler’s “Lake Wobegone” half the students will always be below average, the emphasis upon high-stakes testing is very discouraging and educationally inappropriate. Schooling is not a competitive sport with winners and losers, if we truly believe that “no child [should be] left behind.”

For example, most everyone would agree that students need to master the basic skills. One such basic skill involves the competence to read a bus or train schedule with sufficient understanding so as to determine when one would have to leave a given location to arrive at another point at a given time. This is an example of an important key objective upon which students should know they will be tested. We don’t need to test...
students on trivia with questions many successful adults could not answer, just for the purpose of sorting students. A basic achievement test should not resemble a TV quiz game show; rather, a basic achievement test should determine whether students have or have not mastered the important key basic skills necessary for continued learning upon which they know they will be tested. The emphasis should not be on the score but on what knowledge the students have or have not yet learned.

There is virtually no research that suggests that the NCLB accountability system does more than artificially raise test scores. The so-called “Texas Miracle” was the model for the NCLB Act. Scores on their state achievement test went up, but at the expense of very high dropout rates. Meanwhile, Texas student scores on other national tests, such as SAT scores, did not improve.

The NCLB Act states that by 2014 all American students must be “proficient” in reading and math. Any school at which this doesn’t happen will suffer severe penalties, up to and including a takeover by the state. Under such threats, dedicated teachers and administrators are losing their dedication and becoming number-obsessed. Understandably, when schools operate from a compliance perspective, their work on accountability tends to be cynical and mechanical.

The NCLB law requires school districts to hire “highly qualified” teachers—teachers qualified to teach the subjects they teach. School districts are having a “problem” with this law. But who could argue with such a requirement? The problem is not with this requirement. The problem is in getting “highly qualified” teachers who want to teach in schools that require them to “parrot” scripted lessons, rather than utilize their professional expertise. The problem is in finding “highly qualified” teachers who are willing to teach a specific page on a predetermined day, regardless of whether the children have learned the prerequisite material or not. The problem will increasingly be in attracting “highly qualified” teachers who want to teach in schools for children from low-socio-economic families if these low-scoring schools will be unfairly punished.

Fortunately a few changes in the law will likely be made for schools with special education students and students with limited English proficiency. But the realistic cost to implement the NCLB Act far exceeds federal funding. What we have here is an enormous expansion of federal power over the nation’s education system, sending out the order, but leaving the bill with the states and local districts that are less able to pay.

In sum, the NCLB Act has positively awakened some schools that were previously complacent so that they are now much more serious and deliberate in how they approach teaching and learning. On the other hand, overall, this well-intended test-based accountability strategy is having a detrimental effect. The testing mandate is literally choking the creative life out of classrooms. The tests being used are not measuring what students learn in school, but rather what they bring to school, which is strongly related to the child’s socio-economic status.

Rather than trying to find ways to artificially raise test scores (by teaching test-taking skills and by limiting the curriculum just to material that will be covered on the tests), we need to provide schools with the resources to significantly improve the quality of teaching, offer a stimulating and an enriched curriculum, and better conditions in the schools themselves. This will cost a lot. But we could actually save money if we were to change our accountability tests to measure a limited number of key objectives which could be thoroughly assessed. The test report would list which skills the student has and which skills the student has yet to master. It is counter-productive to publicly humiliate dedicated teachers and administrators who continue to envision the education profession as not just a job, but a dedication of one’s life in behalf of children.
Bibliography


Index of Keywords and Terms

Keywords are listed by the section with that keyword (page numbers are in parentheses). Keywords do not necessarily appear in the text of the page. They are merely associated with that section. Ex. apples, § 1.1 (1) Terms are referenced by the page they appear on. Ex. apples, 1

C Caribbean, § 4(23), § 5(25), § 6(39)
Craig Perue, § 4(23), § 5(25), § 6(39)

D digital commons, § 1(1), 6

E extensible markup language, 5

F Free and Open Source Software (FOSS), § 3(15)

G Greenstone Digital Library, § 3(15)

J Jean-Claude Dauphin, § 3(15)

M memex, 5
modules, § 7(41)
Moodle, § 4(23), § 5(25), § 6(39)

N NCPEA, § 7(41)

O Open Educational Resources (OER), § 3(15), § 4(23), § 5(25), § 6(39)
Open Source Software (OSS), § 3(15), § 4(23), § 5(25), § 6(39)
OSS and OER in Education Series, § 3(15), § 4(23), § 5(25), § 6(39)

P printing press, § 1(1)

U UNESCO, § 3(15)
University of the West Indies, § 4(23), § 5(25), § 6(39)

W WebCT, § 4(23), § 5(25), § 6(39)
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The use of Open Source software is being seriously considered in the Caribbean as a viable alternative to more proprietary "brands" by Higher Educational institutions. The user-public must know the whole story and what are the issues and the possibilities of this vision. This collection of webs is a step in the direction of gaining that knowledge. It marks the start of our Open Source Reading project with teachers at the UTT. One hopes that soon Caribbean institutions will be more involved in the Open Educational resources movement using something like the cnx.org model.

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