Successfully Incorporating Internet Content and Advanced Presentation Technology into Collegiate Courses: Lessons, Methodology, and Demonstration

Ronald Smith
Department of the Social Sciences
Massachusetts Maritime Academy
101 Academy Drive
Buzzards Bay, MA. 02532-1803, USA
Rsmith@mma.mass.edu

ABSTRACT

We are in the midst of a technological transformation that is fundamentally changing the way people access, assimilate, and present information. The view that computers and related technologies, such as the Internet, are only educational tools is no longer valid. Rather, they represent an information and technological revolution that will have an equal to or greater impact on society and on education than that of typography during the mid-15th century. New technologies have enabled students to access information rapidly and visually. Reading is not as central to their learning as it once was. This has implications for all instructors. How will instructors take advantage of such utilization of the Internet and successfully integrate this new and innovative content into their classrooms to more effectively engage their students? What effect(s) will these developments have on pedagogy, the instructor s position in the classroom, and especially upon the students? This article will describe cover these, and other issues, describe why and how this professor incorporated online content and various presentation technologies into his survey and seminar courses, the lessons learned, and the pedagogical impact this approach has had upon his courses. It is, in short, a personal testimony, which has broad applications.

1. Introduction

I am a tenured Associate Professor of History teaching Western Civilization II and the Ancient History and the Medieval History seminars at the Massachusetts Maritime Academy, one of the nine Massachusetts state colleges. As an adjunct professor of history at Bridgewater State College (MA) I also teach Western Civilization I and II. The combined student load between these two institutions is 115 to 145 students per semester.

Between 1972, when I began my higher education career at the Massachusetts Maritime Academy, and the last half of the 1980s the academic level and classroom skills of my students changed dramatically for the poorer for various social, educational, and cultural reasons. A majority now were visual learners, and therefore the traditional textbook/lecture pedagogy had become increasingly difficult for them to comprehend and to utilize. Not surprisingly, test scores were lower on increasingly easier tests and the additional effort necessary to address these and other problems poor classroom skills and a lack of historical mindedness consequently reduced the amount and level of the content in the course. But a more insidious issue exacerbated this situation: I was growing stale in both my presentation and enthusiasm for the course.

Confronted by these realities new methods of presenting the Western Civilization courses had to be devised. Supplementary visuals slides, some video, overhead maps, documents, and occasional pictures were incorporated into the lectures. Detailed lecture outlines were provided to assist the students note taking. To address poor writing and critical thinking skills seven to nine two page papers were assigned per semester dealing with specific historical issues. Content was adjusted to address the students lack of basic knowledge about Western society. Prior to exams study guides for the textbook were distributed to assist students in gleaning potential exam material from that source.

These adjustments had some success. Writing and comprehension skills did improve, but the overall results still remained unsatisfactory. Examinations had become less rigorous over time and student test averages continued to slowly decline. Most significantly, the additional time and effort necessary to address my students academic deficiencies consequently reduced the amount and academic level of the content presented in the course. We were spending more time covering less and less material. Adopting new textbooks was futile in meeting these academic needs. Textbook publishers are very aware that students have increasingly ignored their publications. They have responded to this challenge by producing less challenging and bland Brief Editions , which have been stripped of the detail that would make the text interesting. Thus, these new and improved texts proved ineffective in addressing student resistance to reading traditional texts and despite my efforts these remained as unread as my earlier adoptions.

I was faced with a fundamental choice. Given the continuing academic deficiencies of my students, either I could place my emphasis on attempting to address these problems and lay less stress on course content, or raise my content level to an appropriate collegiate level and leave many students behind. Neither was an acceptable option. At this point I began to seriously analyze the impact of computer and Internet technology upon my students and to comprehend the deep significance of the personal technology revolution on how my students learned.

The development of personal technology the home computer, computer games, the Internet, cable TV has changed the way information is disseminated and absorbed. Students have become acculturated to acquiring data rapidly and visually. They can spend hours playing a video game, watching television, or programming a computer, but not ten minutes effectively reading a textbook. Indeed, the cultural act of reading has become less important, even irrelevant, to them, as the new technology has made reading less necessary to the general attainment of knowledge. A recent article in the *Washington Post* makes it clear that the vast majority of students now use the Internet *exclusively* to research their papers and assignments[1]. More importantly, most students now expect their collegiate experience and courses to reflect these technological advances. Recognizing that one can not be a technological Luddite, I concluded that it was imperative to harness this technology that my students accessed daily for the higher purpose of engaging them in developing their knowledge and their thinking and analytical skills.

I soon discovered that these academic issues facing my students were cross-cultural. In August 2001, I was asked to give a lecture and demonstration of the use and impact of online content and presentation technology in my courses to Fulbright professors, who were spending the summer in the United States. As I described how my students academic capabilities had declined over the past several years, I noted that this could be a phenomenon unique to the United States culture. These professors, representing Nigeria, Italy, Argentina, Bosnia, and Japan, halted me immediately. Not so, they replied. Each had experienced exactly the same issues with their students during the same time period. Cultures will differ, but student academic needs and challenges will not.

2. Incorporating technology

2.1 Description of the Online Textbook Adopted for the Western Civilization Course
In 1998 while investigating the possibilities of utilizing Internet based content in my courses, I was made aware of iLrn s (www.iLrn.com) online, multimedia Western Civilization textbooks. After reviewing the *Western Society* online text and finding it reflected solid scholarship, I adopted it on a trial basis. The results were remarkable. Many of my early concerns portability of the text, access to computers, differing levels of student computer literacy, etc. proved to have little basis in reality. Rather, test scores improved an average of 8-12 points on more extensive and more difficult exams than those employed earlier. The students found the material more understandable and accessible. They did much more reading on many more topics than when the traditional textbook/lecture approach had been employed and I could hold them more accountable for the material. On average 70%-80% of my students at both colleges have preferred this technologically based pedagogy to the standard textbook/lecture instruction.

I have used iLrn s online textbooks for 9 semesters with over 800 students. Initially, iLrn was simply a supplement to my standard textbook and a support for some lecture notes. But since the iLrn text has developed into a pedagogically sophisticated and increasingly interactive site that combines popular platform capabilities with solid content, it is now the sole required content for my survey classes. The iLrn text is not a digitized textbook. Ilrn, the interactive learning network, is an easy-to-use content delivery and classroom management system comprised of

multimedia learning resources and teaching tools within a very robust online site. Its content is original and pedagogically designed to be used and read online.

I presently utilize the *Western World Since 1500* and the *Western World from Antiquity to 1650* in my Western Civilization classes. These online texts provide me with a plethora of ways to enhance my presentation and to more fully engage my students in the course. For instance, The complete *Western World from Antiquity to the Present* contains 70 chapters, 300 primary source readings, numerous glossary definitions and profiles of key historical figures, and interactive modules that engage the students in the learning process through active participation and visual representation of trends and concepts that are difficult to demonstrate using static text. The text itself is designed to engage the student. For example, students can highlight specific paragraphs and compose and save their own notes about the text on screen for later reference. The cost per student this coming semester will be $15.00.

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The material is highly customizable. The site provides an adopting instructor a personal site, *My Workplace*, from which one can customize titles by reordering chapters by adding and/or deleting units of chapters or entire chapters, inserting new content from other iLrn titles, or creating a new chapter from scratch. I can also annotate the chapters with my own comments, views, and instructions, which only my students can read. In short, I can create a personalized text for my students, which reflects how I wish to have the subject presented.

From *My Workplace* I can manage my class rosters, track quizzes, report grades, post memos, and facilitate discussion threads. A Faculty Lounge can be also be accessed, which provides syllabi, outlines of chapters, module exercises, a quiz tool, a faculty chat room, and a student roster that lists names, e-mails, and the time each student has spent on the site. None of the other traditional, static textbooks or online content providers that I have investigated have been able to provide the same level of depth of original scholarship and the ability to engage the student as effectively as the iLrn s robust and innovative presentation of Western Civilization.[2]

ILrn provides me with an excellent foundation upon which to incorporate other online sites and approaches into the presentation of my courses. Over the past three or four semesters, I have utilized other online sites to supplement the content provided by iLrn. For example, the British Broadcasting Corporation maintains a number of excellent history sites that employ flash based animated maps. A BBC site about World War One, which had an animated map of the Western Front from 1914-1918, was used in my lecture on that topic to illustrate the evolution of the conflict in Western Europe.

3. General Pedagogical Principles of my Approach to using Online Content and Presentation Technology

As I have become more comfortable with Internet content and with presentation technology, I have developed certain basic pedagogical principles in applying these technologies in my courses.

> 1) *I do not abandon what I do well.* The utilization of technology does not mean that an instructor must, or should, discard his teaching strengths. I believe, and my student evaluations confirm, that I am a very competent lecturer and so I continue to maintain the lecture as a significant part of my presentation. However, I use the technologies to *enhance* my presentations in order to more effectively *engage* my students in the topic in a manner that will make it come alive to them. This pedagogical approach was confirmed by a very interesting study that was commissioned by Dr. Murray Goldberg, the founder of WebCt, and reported by him in a keynote address at the NAWeb2001 Conference at the University of New Brunswick, Canada, in October 2001.

> Independent investigators studied the level of positive response of students in Dr. Goldberg s course to three different pedagogical approaches in presenting the material: (a) lecture only, (b) computer based only, and (c) a combination of lecture and computer based learning. The results were instructive. The lecture only and the computer only pedagogies had the same results: 25% of the students in each section rated their response to the course as highly positive. However, 50% of the students in the combination section scored the course as a highly positive experience. This illustrates the next point.

2) *Technology must be incorporated into a course.* One cannot tell students to simply use the technology. Unless they understand and see that it is an integral part of the course and that it has real value to them, students will not utilize it to its highest and best use. ILrn s online, interactive textbook is effective not only because it is well designed and engaging, but also because it *is* the students primary text and it is effectively employed in the course. They need to use it to do well in the topic. Again, the purpose of any technology should be to *enhance* the instructor s presentation and to *engage* the students in that particular field.

3) *What people see **and** hear they learn best.*

4) *Have a pedagogical purpose to what one does with technology.* This is vital. One can incorporate online content and technology into a course, but it if does not have a clear pedagogical purpose, it is like cotton candy: it looks good, tastes good, appears to have mass, but when one bites into it, the cotton candy is all air and no substance. Many sites also have what is called the Wow factor one looks at the site and goes Wow!. However, while the Wow factor is helpful in gaining student interest, it is not sufficient absent strong content, visual or otherwise, to justify the incorporation of such sites into the central core of a course. Using technology without a pedagogical goal has a detrimental effect upon the students learning and understanding of the discipline.

5) *I do what I find stimulating and enjoyable.* Professors are paid to profess and to provide educational leadership and guidance to their students. An important aspect of this work is to evaluate what will be used in the course. If I find certain material, teaching styles, and assignments stimulating, this will energize my presentation of that material to the benefit of my students.

6) *Do not abandon standard presentations if these are appropriate and effective.* The term, Technology does not only include high technology, but also overhead projectors, transparencies, slides, and video. Occasionally, certain content will only be available in these formats. For example, certain static map topics are still superior to those that are found on the Internet. This will change over time, but for now I occasionally utilize certain maps and overheads in my lectures along with the Smart Board and Internet content.

4. Impacts and Lessons Learned

I have found the incorporation of technology and online content into my courses to be an outstanding experience for me and for my students. What are some of the impacts and lessons that I have learned?

1) *As I have become more comfortable with online content and technology, my use of it has increased and become more sophisticated.* For example, after successfully using this technology in the traditional classroom setting for three semesters, I decided to present the course in our computer labs with the iLrn and/or other sites projected in the front of the room. This has allowed me to make full use of the technology as a teaching tool, enabling the instant presentation of interactive maps, highlighting content, and incorporating additional Internet links to enhance the subject. In the fall of 2001 I began using the Smart Board, an interactive white board (72) produced by Smart Technologies, Inc., as my presentation device. Freed from having to use the computer s mouse, the Smart Board essentially allows me to manipulate and electronically highlight the online content with a simple touch. This has proven to be an exceptionally effective innovation. Other technological tools e-mail, embedded hyperlinks, and bulletin boards are also employed or soon will be in these courses.

2) *I have moved from a heavy reliance on lecture to a more Socratic approach, employing technology, and the interest it engenders in the students, to encourage analysis, interpretation and critical thinking about historical issues, events, and primary documents.* Employing technology and the interest it creates in students is used to involve the student more in their own learning. Since I know that my students will cover the material in their assignments more readily in the online format that in the traditional print presentation, I hold them more accountable for their work and for understanding the subject(s).

3) *Basic historical knowledge is still important, but communication skills, particularly writing, and critical thinking are equally emphasized.* Traditional objective exams have been eliminated and student evaluation rests upon a series of interpretative papers, weekly quizzes, and two collaborative student projects. Students are also expected to actively engage in the rational discussion and debate of historical issues and questions.

4) *Study exercises for the interactive modules have been created and ways to use computer technology and Internet content to improve note taking and their general classroom skills explored.* In some instances this has been as simple as teaching students how to copy and paste online content into Microsoft Word, where it can then be easily edited and placed into outline form for future study.

5) *Seek partnership alliances with private corporations and/or associations to advance the educational goals of the course and to enhance the educational experience of the students.* The employment of technology as a core aspect of one s pedagogy leads an instructor to think innovatively in other ways as well. In this case I was inspired by my son s work with Scientific Applications International Corporation, where he is involved in designing war games and situational simulations for the U.S. military and for the C.I.A. If it is appropriate for the U.S. government, then why not for my Western Civilization course? In exploring an outstanding site about Napoleon (www.napoleonguide.com) that I wished to display in lecture, I discovered a review of an upcoming release by Breakaway Games, Inc. of a sophisticated computer game about Napoleon s greatest victory, Austerlitz. Such companies not only have an exceptional understanding of visual pedagogy and game theory; they also pay very careful attention to historical detail. What better way for my students to learn how remarkable Napoleon was as a commander than to fight one of his battles? I realized that a well-directed, collaborative student project, centered on student teams, who would engage in combat with each other, would have numerous educational benefits. They would need to understand the tactics and the operational parameters of the various units. The teams would have to maintain a clear overview of the big picture without losing site of the details of the battle. To win in this simulation would require each team to be organized, work together, learn how to effectively manipulate its forces, build a strategy, but be able to adjust to meet unforeseen circumstances and the fog of war, anticipate future situations, and to have a knowledge of the period. And they would have to accomplish this in an exceptionally competitive atmosphere. These are all skills that would not only serve them well at the Academy, but also in the corporate world. This concept was discussed informally with some students to gain their views about such a project. The enthusiasm was universal, even to the point of some students from the spring semester asking if they could be part of the simulation if it were implemented this fall.

I called Breakaway Games, which was very receptive to the idea of using its games for military simulations in a history course. Not only had it developed game for Austerlitz, but also for Waterloo and for the Peloponnesian War. The latter could be used in an Ancient History seminar. Recently, I visited Breakaway Games outside Baltimore, MD. Details are still be worked out, but there will be a pilot program this fall incorporating a military simulation using Breakaway Games *Waterloo* and/or *Austerlitz* in my Western Civilization class. I will have access to outstanding products and support, Breakaway Games will gain academic insight, expertise, advice, and promotion to what could be a significant secondary market for its products, and my students will benefit from innovative and entertaining educational approach that utilizes a technology, computer games, of which they already well acquainted.

6) *Classroom configuration has a direct bearing on student learning.* This is a well-established pedagogical concept, but it becomes even more significant with the incorporation of presentation technology in a classroom[3] Generally, students learn best in classrooms when there is clear eye-to-eye contact with each other and with the instructor and they can sit in small groups. I have found that the least effective design is having students sit in rows, which is usually the standard classroom configuration be it a lecture hall or a regular classroom. This setup requires the instructor to move about the room to overcome the inherent design flaws in making direct contact with the students and any collaborative work or discussion in the class among the students in much more difficult to implement. Clearly, almost all computer labs are poorly designed for learning. Most have the computers in rows with the monitors on the desks effectively concealing the student and blocking a clear view of the room. While this may be minimally acceptable for teaching computer applications, it makes using the labs for other courses more difficult. Computer labs should be designed with the computer stations grouped in units and with monitors located in the desks. Not

only does this enhance the teaching of computer science, but it also creates an excellent environment for utilizing the labs for the presentation of other subjects that utilize computer technology and online content into the course. These same principles apply to designing standard classrooms.

7) *Administrations must make sufficient investment in their IT/Visual Aids departments and in the technological infrastructure necessary to support technological advances.* Not making this investment is like trying to build a house without a foundation. How can faculty and administrators be expected to embrace technological change and new approaches if the server does not work, there is not enough bandwidth to support applications, and help is not available when one needs it? This professor is fortunate to be at an institution that has made the necessary investments in IT and in its technological infrastructure. Therefore, we are able to explore various ways to use innovative technologies in our classes. Others are not so privileged. Upon giving a demonstration at Curry College, an excellent four year liberal college outside of Boston, of the Academy s technologically based pedagogy in teaching history, it was discovered that Curry College employed one person as the IT department for the entire college. Until this deficiency is addressed, Curry College will be hindered in its ability to incorporate new technologies into its administration and into its curricula.

8) *Any technology must be easy to operate and to understand.* A few faculty will take the time to learn how to set up computers, LCD projectors, and Smart Boards for their classes, but the great majority will not. Unless the technology be it Internet, computer-based, or presentation technology is configured in a manner that only requires the instructor to turn on the power and use it, a majority of faculty will be reluctant to employ it. They have not been trained to hook up such equipment, generally there is insufficient time before class to do so, and it adds an extra layer of work to the preparation for the class. If it is desired that faculty will experiment with using technologically based approaches in their classes, then the technology must be very user friendly.

5. Additional Lessons

There have been other lessons as well. Employing technology does not reduce the preparation necessary for the class presentation. An important component of this preparation is to work with the IT department in setting up the in-class technology so one has sufficient time to have everything working properly prior to class. The instructor should consider the IT department to be part of his educational team. Also, since on rare occasions the technology will not operate exactly as planned, a backup presentation should be available.

In the United States most academicians may be liberal politically, but they are conservative pedagogically. Many view technology as a threat to rigorous educational standards and/or to their central position in a course. This was illustrated at a panel on using online content in history classes at the 2000 American Historical Association convention in Boston, MA. There were approximately 200-300 historians in attendance and the panel gave a good presentation. At the conclusion the Chair addressed the audience and warned that technology would replace professors in the classroom. This is an unfortunate misconception. Technology does not, nor should it, replace the professor and if it can substitute itself for a professor, then that professor should not be teaching. Rather, I have found that it has enhanced my work and since students are already comfortable with computer and Internet technology, they perceive this teaching approach as progressive and as cutting edge. Therefore, my authority as the professor at the center of this course is strengthened, student attention spans are better, their enthusiasm for the discipline is excellent, and more content is effectively covered.

Nonetheless, these concerns and fears must be taken into account when planning to incorporate technology and related innovations onto a campus and into the curricula. Administrations must not simply impose new technologies, online platforms, and content onto their faculties and students. Without the proper assessment of the purpose and use of technology and without building a reasonable consensus for the need of these improvements, at best they will not be properly utilized and at worst opposition to such innovation will arise. For example, a former faculty member of a prestigious New England liberal arts college[4] related the story about a dean of that institution, who decided that the faculty should use WebCt to upgrade course management and presentation. WebCt was installed on the campus server and the faculty was told to use it. However, little, if any, training was provided, IT support was insufficient, and although some faculty did successfully determine how to use the WebCt platform in their courses, most found the WebCt initially challenging , time-consuming to use, and, not surprisingly, saw little benefit to this well-

intentioned policy. So rather than encourage innovative change, it created resistance to technology supported pedagogy among some faculty. The dean, who implemented this poorly structured policy, later left the college for another position, leaving the WebCt issue unresolved. This unfortunate experience will make it more difficult later to build faculty support to realize additional technological change on that campus.

The Massachusetts Maritime Academy s administration has approached technological upgrades and innovation more effectively. The Academy has committed itself to install up-to-date Smart Technology[5] presentation equipment (Smart Boards, multi-media presentation podiums, and more) in a computer lab, one classroom, and a newly constructed lecture hall. However, prior to making this decision, with the support of the Admiral and the Academic Vice-President an informal committee to oversee and to coordinate the assessment of technological upgrades was formed. It consisted of the Academic Vice-President, the IT Director, the Director of Continuing Education, the Commandant of Cadets, the Academy Development Officer, and a member of the faculty. Each academic department was asked what type of presentation technology would be useful to its discipline(s) and individual faculty advice was actively sought. The Nautical Science Department, for example, made a case for creating a Smart Technology classroom on the training vessel. A sample of students was also given the opportunity to provide its views. A general consensus was established regarding the necessity for and the level of this investment. The committee then met with a vendor to review the Academy s needs and resources, discussed the vendor s later proposals, and made the decision to commit to this program. At each stage of this investigation, interested parties both in the administration and in the faculty were kept informed of developments and given the opportunity to provide advice. This approach, a cooperative effort between the administration and the faculty, will insure that this investment in technology will encourage innovation, yielding significant educational dividends for the Academy, the faculty, and the students. Such an approach would be equally effective in addressing other potentially powerful issues such as intellectual property rights.

6. Conclusion

This technological revolution is here to stay and exciting developments are on the horizon. This revolution is expanding most rapidly outside the United States and Western Europe. Within a few years 3 billion additional people will be connected to the Internet[6], resulting in an enormous diffusion of knowledge and ideas. Technological innovation must be encouraged and maritime colleges are well suited to take the lead in this area. Because of their technical orientation maritime institutions have already utilized various levels of simulations and computer technology in some disciplines, but not in all academic areas. New technologies need to be rationally assessed and
. incorporated into the academic programs for sound pedagogical purposes. The principles of using and incorporating various technologies into academic courses outlined in this paper are generally applicable to other institutions and to disciplines other than history. This professor s experience has validated this approach. My use of online, customizable content and Internet technology in my Western Civilization courses has led to the evolution of an innovative pedagogy in those classes, which has invigorated my teaching, and more effectively engages and enthuses today s increasingly visual and technologically oriented students.

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[1] See *Point.Click.Think?* , **The Washington Post,** Tuesday, July 16, 2002, Page **C01**.

[2] To examine the iLrn online textbook go to www.ilrn.com.

[3] For a discussion on this and other factors that affect how students learn see *How People Learn: Brain, Mind, Experience, and School* (2000) published by the National Research Council. This excellent overview of studies on learning can be read online at www.nap.edu.

[4] The name of this college will be given upon request. The name was withheld since it was not possible to confirm this incident with another source due to summer break. However, this is not a unique story. Similar experiences on other campuses exist in great abundance.

[5] To learn about the technology that the Massachusetts Maritime Academy is planning to install, visit Smart Technology s website at www.smarttech.com

[6] This information is based upon conversations with Dr. James Duderstadt, President Emeritus, University of Michigan, and with Dr. Daniel Atkins, Professor and founding dean, University of Michigan s School of Information, January 2000.