

Changing Local and Global Identities: Designing Classroom Architecture for the Future

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Abstract

This essay addresses the relationship between web-based teaching and changing physical and cultural classroom identities. It argues that current Information Technology practices are inadequate for developing a human infrastructure able to engage in curriculum development that goes beyond a technology-mediated version of traditional face-to-face course design.

The course design and program development of the Nebraska Wesleyan University (Midwestern United States) eDesign program is discussed as a model. The eDesign program provides students with individualized course materials through web-based course design, and student outcomes are exhibited on-line. Students with regional, rural identities find that their work has global as well as local implications.

Index terms – classroom identities, digital art, digital culture, Information Technology, web-based course materials, web-enhanced pedagogies

Introduction

This essay addresses the relationship between web-based teaching and changing physical and cultural classroom identities. Currently, academic institutions in the U.S. demonstrate a high degree of enthusiasm for distance-learning and web-based course materials as evidenced by colleges and universities investing heavily in Information Technology and software packages like Blackboard or Web CT, with a reported 21% of all U.S. college courses using some course management system in 2001.¹ Similarly, primary and secondary schools are also investing heavily in technology, although some research indicates that most teachers lack the training to use technology effectively.²

Clearly the move towards incorporating technology in the classroom is warranted; most of today's students come to the classroom with a wide range of technology-related experiences and often seek the technological over the non-technological to solve day-to-day problems. For example, today's students are often more likely to check a web site

than make a phone call or visit the library to seek out a publication for specific information. Although many mid-career faculty in higher education as well as primary and secondary teachers learned to program the VCR or use the microwave as young adults, most students under the age of 21 living in developed countries have been using digital devices like VCRs and microwaves since early childhood. ATMs, web research, digital phones, instant messaging and e-commerce are normalized for this generation in a way they were not for previous generations. Even by 1997 the *New York Times* reported that in 1963, 25.8 million homes in the U.S. with TV sets tuned in to the coverage of the Kennedy assassination, but over 45 million people visited NASA's web site between July 4 and 11 during the Mars Pathfinder mission.³ Today's students come to the classroom with sophisticated experiences using technology and expectations about technology not shared by all of their teachers.

Although some will point to earlier changes in technology, such as the introduction of photography or television, as valid comparisons to the changes we are currently experiencing with computer technology, such comparisons do not stand up under close scrutiny. Such individual technologies made significant contributions to cultural change and had far ranging consequences, but none offered the networked, interactive communication possibilities of digital technologies. Nor have we had the ability to use combinations of aural, visual, textual, and motion elements in an interactive communication environment previously. Such possibilities, I believe, are as significant as the changes experienced as culture moved from orality to literacy or print after the "invention" of the printing press. Walter Ong and others have described the profound change on human culture that occurred in the shift from orality to print. He suggests, for example, that in oral culture, sustained thought is tied to oral communication. "In an oral culture," he writes, "to think through something in non-formulaic, non-patterned, non-mnemonic terms, even if it were possible, would be a waste of time, for such thought once worked through, could never be recovered with effectiveness, as it could be with the aid of writing. It would not be abiding knowledge but imply a passing thought, however complex."⁴ It is nearly impossible for us, as literate people living in a culture that has thrived for centuries on print, to imagine a world in which everything that is known, is known through oral story telling. Even the use of the word "story" for us, implies a print culture definition.

We cannot yet know what kinds of profound changes are in store as cultures that have defined themselves in primarily linear textual thought move to a global, interactive, networked environment where audio, video, image, text, and hyperlinks are all primary elements and three-dimensional holograms are, perhaps, not far in the future. It is not solely that the medium is the message as McLuhan⁵ claimed, but that content is "heard" and understood differently in different contexts and different media. Indeed, I would argue that medium specifically impacts the kind of message that can be created. Like the difference between radio and television where visual metaphor enriches the narrative environment of television or, more simply, like the difference between the subtlety of pencil on paper and the bold powerful strokes of ink on brush in the artist's hand, different media are suited for different kinds of "story telling." We are able to tell new "stories" in new ways as we move away from linear textual and visual environments to interactive, networked environments. Never before has a

communication medium offered a blurring of the line between writer and reader, artist and viewer, performer and audience through the interactive qualities – and therefore, multiple perspectives – accommodated at a click of a mouse, or perhaps by voice command in the very near future.

Such changes in communication, in the ways in which medium affects and changes how and what we are able to think, require significant changes in how we think about teaching and learning. Our experience of ourselves as teachers, students, and learners is challenged by an interactive environment and by a generational shift in how technology is becoming normalized in the culture at large. Technology, in this way, becomes a part of a new theoretical terrain, a new communication medium, which transforms the context in which content is presented or received. The same forces that are creating digital change in the culture as a whole are also at work in the classroom. Listservs, email communication, Internet research, and so on are slowly changing the classroom architecture and create tension with and within more established physical and cultural classroom identities. Student experience and expectations about technology and the ways in which the shift towards digital culture is normalized for students enhance such tensions. If education is to meet the challenge of negotiating these tensions, curriculum development must move beyond providing technology-mediated versions of face-to-face course design and provide opportunities for new classroom identities to emerge.

Human Infrastructure vs. Hardware and Software Infrastructure

The administrative approach to changing technology for many colleges, universities, and public school systems, however, is focused on providing technological tools rather than developing theoretical or pedagogical frameworks for using those tools in the classroom, putting human infrastructure second to the hardware and software infrastructure.⁶ And although it is true that developing a hardware and software infrastructure does provide opportunities for teachers to begin using those tools, opportunity alone is not enough for most teachers to meet the expectations of their students in the use of technology. In fact, research shows that female teachers are disadvantaged by such an approach, a serious problem for primary and secondary school children who work primarily with female teachers.⁷ Early research by Sherry Turkle demonstrated that men, far more often than women, learn new technologies when provided with an opportunity to “play” with the computer and use such play as a method of learning. On the other hand, women are more interested in utilizing technology when they are taught how to accomplish a particular task.⁸ Aside from issues of time and resources, which affect all teachers, for female teachers in particular, integrating technology in the classroom requires more than an opportunity provided by hardware and software availability.

When administrations are concerned about human infrastructure development, it is most often provided in the form of Information Technology (IT) support. Such support varies from institution to institution, but may include workshops related to using particular software or hardware as well as one-on-one course development assistance from a technology expert. Although working with a technology expert does provide the

teacher with greater options than s/he could achieve on his/her own, frequently such collaboration results in a technology-mediated version of face-to-face course design because of two competing but symbiotic interests. First, the faculty member who is responsible for course content approaches the problem of course design from the perspective of his/her experience in the classroom. Secondly, the IT professional approaches the problem from the perspective of providing a cyber-environment for course content developed by the teacher for face-to-face physical and cultural classroom identities. Although the IT professional has the expertise to imagine alternative digital approaches and environments, s/he does not have the disciplinary expertise to envision how those digital approaches and environments will enhance, support, or detract from the course content, nor is s/he responsible for implementing the resulting course design. On the other hand, although the faculty member comes to the table with a belief that multimedia or technological enhancements can improve the course, generally s/he cannot—in practical and functional ways—apply that belief to move the course content beyond forms that maintain established classroom architecture.

Until the faculty member develops some technological experiences of his/her own that serve as a source for creative problem-solving in his/her real life classroom, IT support puts the cart before the horse. At my institution, discussions about using technology in the classroom tend to polarize into two camps. In the first, those who use technology or would like to use technology in the classroom argue for more “toys” — hardware, software, projection devices, etc. In the second, those who distrust technology argue that chalk is a technology and should be validated as such. Neither camp, in the rush towards a utopian or dystopian view of technology, is engaged in considering how chalk or computers as technologies are related to existing or changing classroom identities or architecture. In many cases, the use of technology — such as a PowerPoint presentation projected for the class in place of standard overheads — is simply a more visually interesting form of the existing course materials. Although one can argue that a more visually interesting environment may enhance student interest in the material, such an outcome hardly justifies the expense of a laptop, overhead projector, and the faculty and IT resource to develop such materials. And in some cases, a “more visually interesting” environment is actually one in which the visual detracts from the content, expending resources for a learning environment that is less useful because the faculty member is not able to manage the complex visual communication issues in a manner that supports the content.

In other words, in many cases, resources are being expended to use computer technology to do the same tasks that less expensive and less complicated technologies can do better. In these cases, faculty are using technology to maintain the status quo of print-defined cultural norms in the classroom. A technology-mediated version of traditional face-to-face course design may appear on the surface to be innovative and teach technological literacy to students, but it offers little beyond the surface and is expensive and time-consuming as well.

The same issues face primary and secondary teachers who are not technologically focused in their own lives. Until teachers have real life experiences that change their own relationships to technology, they do not have the resources to imagine using

technology to transform classroom architecture. I would argue that the best method of developing human infrastructure is to provide individual teachers with relevant day-to-day technological experiences. That is, if the goal is to encourage students in on-line discussions, teachers should spend a semester engaged in their own listserv experiences. If the goal is to engage students in writing hypertexts, teachers should first spend a year writing their own hypertexts. If the goal is to provide students with on-line research skills and analytical skills for evaluating on-line sources, administration needs to provide teachers with resources and motivation to engage in their own on-line research projects. Although workshops and IT support can enhance teacher learning by providing group and one-on-one development of technological skill sets, the technological skill sets alone are insufficient to engage teachers in meaningful technological curricular development. An added benefit to teachers becoming engaged in a technological learning experience prior to integrating similar experiences in their courses is the experience of facing their own technological anxiety and understanding their own learning curve and learning processes using the technology. Such experiences are invaluable in developing appropriate pedagogy for teaching in a technological environment.

But most importantly, it is only through such experience that faculty and teachers become able to discern when using technology merely maintains established classroom architecture and when using technology moves the educational enterprise into new and uncharted interactive, networked terrain. Without the theoretical and pedagogical frameworks for considering such issues, establishing goals for engaging students in on-line discussion, Internet research, or writing hypertexts is no more or less meaningful than establishing similar face-to-face or print culture goals such as involving students in small group discussion, traditional library research or writing essays.

A case study: the eDesign BFA major at Nebraska Wesleyan University

My own experience teaching in a technological environment began as a vocational interest working with student graphic designers using computer graphics and layout software. As my expertise in designing and producing desktop publications increased, so did my interest in the relationships between production, form, content and audience. In 1995 those interests expanded to include web design where I began working with hyperlinks from a designer's perspective. The implication of creating interactive visual "texts" for a potential global audience was so engaging theoretically and creatively that I began to literally dream in hyperlinks.

Although I immediately encouraged students in small groups and individually to pursue their own graphic design-related web projects, it took another three years before I began to use the web as a structure for course materials. As I have argued in this essay, until the web was part of my own experience outside of the classroom, I did not envision how the web could and eventually would change my pedagogy and course design.

Later, after I had created and used my own web-based course materials, I discovered course management software packages (Web CT and later Blackboard) were available to

me through IT support on my campuses. By the time I investigated the possibility of using such software, however, the form of my web materials was so tightly woven into my course design that I found both software packages restrictive. That is, from the perspective of someone who was already using web-based course materials, course management software, by default, requires its own way of thinking about course materials. Like a paint-by-number project, the form of the software shapes the kind of final product the user is able to imagine—especially a user without a lot of web experience. Although I am not opposed, *per se*, to administrative support of such course management software and do see the usefulness of a pre-packaged paint-by-numbers approach for beginning users in managing a technological learning curve, I believe that administrators, IT professionals and education faculty must consider and researched the ramifications of such an approach on curriculum development, course design, and classroom pedagogy.

Of course in any period of change, the movement towards the new, uncharted terrain is modeled after methods that are more familiar and real innovation comes in spurts with many false starts in wrong directions. In any age, technological change occurs through a process of first imitating the old while foreshadowing the new. The automobile was first conceived of as a carriage, albeit horseless. The first electric record players resembled the crank Victrola with an electric turntable motor—the off/on switch was a later addition. Similarly the first gas cooking stoves resembled their wood and coal burning counterparts with the all-important thermostat⁹ and pilot lights added later. The interface for the first graphical home computers resembled an office desk with file folders and a trash can—a metaphor that remains central in organizing files and using a personal computer for most users entering a new millennium.¹⁰

My earliest on-line course materials, too, looked a great deal like their paper counterparts. But it didn't take long, even though I began with a paper model, before hyperlinks changed my perspective about my course materials and how students interact with them. Although I started with the assumption that the syllabus is the primary document from which all others are linked, it became clear that students experience the Daily Assignments page as the primary document on the course site. On this page (see <http://www.starlastensaas.net/courses/eDesign/S02/daily.html>), students find the schedule of what is happening in class on any particular day with links to specific assignments, on-line tutorials, grading criteria, on-line lectures, or examples as appropriate for the particular class and that particular day's work. Although this approach, in and of itself, is not particularly innovative, it has changed the environment in my classroom considerably. I spend a lot less time "reminding" students of their homework responsibilities, deadlines, and grading penalties. Students take more responsibility for such things and my authority in the classroom has shifted (in a positive way) to the students.

In addition, the web site, in all issues of course management, has become the "authority" in the classroom, relieving me of the burden of having to accurately and repeatedly communicate when work should be turned in, what the parameters of the problem are, and what specifically is required for grading. At any student question or inconsistency in my communication, students will individually or collectively check the web site.

Even though I am responsible for the content on the site, students experience the site material as more definitive, more consistent, and less prone to error than I, as a mere human teacher, might be. Similarly, assessment of all course assignments is made on a grading sheet (printed from the site) that uses the same text found on the assignment pages and each assignment page includes a link to the assessment tool. When students have a question about a grade, it is the web-based documents that clarify the standards of achievement.

The shift in teacher/student identities in my classroom is also related to program development beyond the particulars of individual course design. In 2000, I accepted a faculty position at Nebraska Wesleyan University in Lincoln, Nebraska (Midwestern United States) where I was invited to incorporate a digital component into a traditional studio art curriculum, resulting in an eDesign B.F.A. major. Because Nebraska Wesleyan is a liberal arts university that values the development of communication skills, analytical thinking, and a broad-based education, a major that focuses on web design and utilizes a foundation in traditional visual arts seemed to be a good fit. Having recently taught a distance-learning component of a course and having used web-based course materials for a number of semesters, I had some concrete experience designing digital classroom environments beyond just using computers as digital tools to accomplish a print culture task. Because I wanted to create a digital learning environment that would provide students with functional experiences using the web to accomplish daily tasks as part of their immersion in web design, all course materials in the eDesign sequence are on-line.

One of my first concerns was to develop a computer lab that would serve as a digital art studio, providing a classroom space for students to easily access course materials and create on-line responses. Because studio art as a discipline is heavily dependent on art studios, or physical architecture, as part of the teaching environment (much as biology or chemistry is dependent on the physical architecture of science laboratories), the lab was an important aspect in creating a dynamic learning environment. I was especially concerned with arranging computer stations to enhance peer teaching of technological skill sets. Central to my teaching over the last two decades is the notion that technological success requires a learning community in which all members—regardless of other credentials, class standing, or experience—are teachers and learners. Therefore, in designing curriculum, I am interested in enhancing opportunities for those more expert with the technology to serve as resources for those less expert and for such sharing of information to be normalized in the classroom and beyond. In developing the eDesign program curriculum, I sought to teach advanced courses concurrently to enhance cross-fertilization of teaching and learning in the eStudio computer lab, and worked with an interior designer to install work stations to serve to both bring the class together as a whole and provide smaller learning pods of three to six where students working on similar projects can consult with one another. The floor remains uncarpeted and all chairs have wheels to facilitate students and faculty moving easily from one station to another.

I am also interested in students developing computer-learning environments beyond the classroom and in the design of course materials have developed opportunities for

traditional design projects to have an on-line component. Part of the eDesign course requirements involve digital components of paper-based projects in which students learn the technological skill sets necessary to work with digital images, video, audio, and site development. As students master technological skill sets, assignments move away from traditional design problems and to solely digital problems. Course curriculum offers students opportunities to explore individualized interests and this program strength draws students with diverse interests beyond traditional studio art, from music to film-making, from illustration to animation, from script-writing to game creation. The opportunity to offer individualized approaches to design problems is enhanced by the web and its multimedia potential – there are many kinds of media and therefore many different directions available in a web environment to solve a communication problem and a student is limited only by imagination and motivation.

Students' digital work is exhibited both on student generated and managed sites and on the Art Department's site. The most interesting outcome of this approach is the level to which some students become more invested in their work in digital forms than traditional forms as well as their deepening involvement in the course as they begin designing their own sites. Students who were meeting a reasonable to high standard of achievement, but did not demonstrate a great deal of ownership about their paper-based projects, suddenly became very invested in their work once it was in digital form. And students who had complained about high standards and the amount of time required to complete earlier paper-based assignments were suddenly spending significant hours outside of class in the eStudio as well as requesting additional tutoring or response from me outside of class. In fact, the degree of pride and ownership in their sites – deserved or not – made for lively class sessions with students competing to be next in line for my response. This semester, when students were given the option to skip the final critique of student-generated sites, only two students decided to do so – the rest spent two hours in a critical and yet supportive exchange with one another about their sites.

Response to digital exhibitions posted on the Art Department's site has also gone beyond the expected response to traditional exhibitions hung in the student gallery or professional gallery on campus. Students expressed appreciation for being able to email URLs of digital exhibitions in which their work was shown in the context of their peers. I received email posts from more than one high school art teacher who expressed pleasure at seeing the work of their graduated art students. In addition, because I send out an email announcement when a new exhibition is posted, within our local community, other faculty and staff members who would not normally walk through one of the campus galleries, do visit the digital exhibitions from their desktop.

Although in the beginning stages, these on-line portfolios and digital exhibitions become the students' opportunity to present themselves on a global scale that is not possible for traditional artists exhibiting in traditional galleries. Students with regional, rural identities find that their work has global as well as local implications and such implications serve as an important source of motivation and validation.

More significant, I believe, will be the international collaborations that are made possible by interactive, networked digital media. Although the eDesign major is still too young

to require students to seek out and engage in international collaborations, I see such future collaborations as central to student development as web designers. A recent trend within the global digital arts community solicits artist participation on portals where the “curator” designs a page that calls artist-maintained sites to the portal. I recently participated in such a collaboration, Project Hope <<http://nonfinito.de/hope>> curated by Annie Abrahams, Alan Sondheim, and Reiner Strasser, American, Australian and German digital artists. Central to the collaboration was the international representation of artists who participated in the call to address issues of hope in the world after the September 11 attack on the World Trade Centers in New York City. Conceptually, socially, and politically, such international representation offers a fertile ground for challenging regional identities and considering the global implications of regionally held assumptions. Such experiences can be invaluable to students, especially those who are multi-generational residents of the rural Midwestern United States or other similarly isolated places around the globe where regional identities are more homogeneous than diversified.

My email correspondence with Strasser about the nature of digital art and later collaboration with Project Hope placed my work in a larger context than I am accustomed to and I found myself considering, for example, the implications of my use of English in text-heavy art work and the ways in which, as an American, I have not considered my audience in this regard. This point was made even more clearly as reviews about the Project Hope site were posted to my email account – in German, Italian, and French. Although I continue to use language as a primary component in my work, I am now more aware of other ways in which my work may or may not communicate to non-English speaking viewer/readers and also how metaphors and idioms, to non-American English speakers, will resonate, or be misunderstood, in a variety of ways. Clearly my art-making experience has been enlarged and challenged by this globalization that was not available to me prior to the interactive, networked growth of the web.

Conclusion

Although we cannot know what kind of profound change is in store as cultures that have defined themselves primarily in linear textual and visual thought move to a global, interactive networked environment where audio, video, image, text and hyperlinks are all primary elements, it is clear that such change requires that we consider teaching and learning from new perspectives. The same forces that are creating digital change in the culture as a whole are also at work in the classroom, creating tensions with and within more established physical and cultural classroom identities.

This essay has argued that it is only through personal engagement in meaningful technological experiences and environments that faculty and teachers will be able to discern when using technology merely maintains established classroom architecture and when using technology moves the educational enterprise into new, uncharted, interactive, and networked terrain. Without such discernment, using technology in the classroom results in little more than technology-mediated versions of face-to-face course

materials, which are expensive and time-consuming while merely maintaining the status quo of print-defined cultural norms in the classroom.

Without engagement in theoretical and pedagogical frameworks, establishing technology-related goals in the classroom is no more or less meaningful than establishing traditional face-to-face classroom goals. Development of a human infrastructure prepared to engage in theoretical and pedagogical frameworks related to using technology in the classroom, however, is of critical importance as new generations of students for whom technological change is normalized leave the classroom to live and work in a networked world that will challenge their local and regional identities. We must begin designing classroom architectures for the future.

¹ Florence Olsen, "Getting Ready for a New Generation of Course-Management Systems," *The Chronicle of Higher Education*, December 21, 2001, p A25.

² Millicent Lawton, "Computers Have Little Use Without Teacher Training, Study Says," *Education Week on the Web*, July 9, 1997. Available: <http://www.edweek.org/ew/vol-16/40bent.h16>

³ "Mars Landing Signals Moment for Web Use," *New York Times*, July 14, 1997, Section D, p. 1.

⁴ Walter Ong, *Orality and Literacy: The Technologizing of the World* (London and New York: Methuen & Co., 1982) pp.34-6.

⁵ Marshall McLuhan, *Understanding Media* (MIT Press, Reprint edition October 20, 1994) pp. 7-21.

⁶ Lawton. Available: <http://www.edweek.org/ew/vol-16/40bent.h16>

⁷ Carole S. Nelson and J. Allen Watson, Ph.D., "The Computer Gender Gap: Children's Attitudes, Performance and Socialization," *J. Educational Technology Systems*, Vol. 19(4) 345-253, 1990-91.

⁸ Sherry Turkle, *The Second Self: Computers and the Human Spirit* (Simon and Schuster, 1984; Touchstone paper, 1985; second revised edition, MIT Press, forthcoming).

⁹ Ruth Schwartz Cowan, "The 'Industrial Revolution' in the Home: Household Technology and Social Change in the 20th Century," *Technology and Culture* 17 (1976) p 7.

¹⁰ Steven Johnson, *Interface Culture: How New Technology Transforms the Way We Create and Communicate* (Basic Books, Reprint edition 1999).

Note: Some of the ideas found in this paper were explored in an earlier paper published in the juried on-line journal, *Radical Pedagogies*. (<http://radicalpedagogy.icaap.org/content/vol1.1999/issue1/stensaas.html>).