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DISTANCE LEARNING

... For Educators, Trainers, and Leaders

In this issue the spotlight is on

NASA's Digital Learning Network

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Distance Learning, an official publication of the United States Distance Learning Association (USDLA), is sponsored by the USDLA, by the Fischler School of Education and Human Services at Nova Southeastern University, and by Information Age Publishing. Distance Learning is published four times a year for leaders, practitioners, and decision makers in the fields of distance learning, e-learning, telecommunications, and related areas. It is a professional magazine with information for those who provide instruction to all types of learners, of all ages, using telecommunications technologies of all types. Articles are written by practitioners for practitioners with the intent of providing usable information and ideas for readers. Articles are accepted from authors with interesting and important information about the effective practice of distance teaching and learning.

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Reaching Beyond the Conventional Classroom

NASA's Digital Learning Network

Damon Talley and Gamaliel "Dan" Cherry

The Digital Learning Network

The National Aeronautics and Space Administration's (NASA) Digital Learning Network (DLN) connects K-16 students, educators, and families to NASA scientists, engineers, and education specialists through videoconferencing and webcasts. The DLN consists of all 10 NASA Centers across the country: Ames Research Center, Dryden Flight Research Center, Glenn Research Center, Goddard Space Flight Center, Jet Propulsion Laboratory, Johnson Space Center, Langley Research Center, Marshall Spaceflight Center, and Stennis Space Center. Each center has a unique and important role in NASA's mission.

Luckily one does not have to search across 10 different centers to find content of interest. The content catalog and webcast schedule can be found at: http://dln.nasa.gov/dln. Registration and scheduling of "events" or modules is free. Events in the catalog range from asteroids to robotics and users determine the date and time of the connection. Event descriptions include pre-/postactivities, a teacher lesson plan,

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and the corresponding national standards. DLN coordinators at each center facilitate scheduling, test connections, and presentation of events. DLN coordinators are highly trained in NASA content and bring diverse teaching backgrounds to the DLN.

The DLiNfo Channel section of the DLN website serves as a calendar of upcoming webcasts and provides the webcast stream. DLiNfo Channel webcasts can reach large audiences but still maintain interactivity through a chat room or questions submitted via e-mail. Webcasts include guest speakers, educational product showcases, and special events such as NASA launches.

America's Spaceport: John F. Kennedy Space Center

NASA's John F. Kennedy Space Center is the launch site for all U.S. human spaceflight and many of NASA's unpiloted vehicles. One of the most popular events on the DLN is an award-winning interactive virtual field trip to America's Spaceport. This author (Talley) grew up near Kennedy Space Center and is happy to share my excitement for it every single time I connect with students. Stunning aerospace imagery and enthusiasm is important in videoconferencing because "ultimately it is the photogenic nature of these displays, together with the affability and open-endedness of the student presenter dialog, which determines the level of meaningful engagement" (Sumption, 2006, p. 931).

Participants in America's Spaceport explore the Vehicle Assembly Building (VAB), which was the largest building by volume at the time it was constructed. Originally designed to stack the Saturn V Moon Rocket in the vertical position, the VAB's high bay doors could accommodate the Statue of Liberty. The journey continues aboard the largest tracked vehicle in the

Figure 1. VAB.

Figure 2. Crawler.

entire world, the Crawler-Transporter. Capable of moving 12 million pounds worth of rocket and launcher, the Crawler gets 42 fpg (that's feet per gallon) and traverses the 4-mile journey to the launch pad in only 8 hours. Finally, students experience a Space Shuttle launch—sometimes live!

DLN "launchcasts" countdown launches live via a webstream on the DLiNfo Channel. Launchcasts usually begin streaming live at T-minus 60 minutes to launch and include content on: vehicle, payload, crew, and the mission. Participants can submit questions and get answers during the program live via e-mail. The prelaunch program includes special guests such as NASA engineers, scientists, program managers, and celebrity guests. Our biggest "get" was Neil deGrasse Tyson, director of the Hayden Planetarium in New York and host of *Nova scienceNOW*. Tyson braved a very hot day in May to help countdown the STS-125 Space Shuttle mission to service the Hubble Space Telescope.

Interest in Science

NASA (2006) Category 2.4 regarding student involvement K-12, is to Engage: Provide K-12 students with authentic first-

Figure 3. STS-125 launch.

Figure 4. Talley with Neil deGrasse Tyson.

hand opportunities to participate in NASA mission activities, thus inspiring interest in STEM (Science, Technology, Engineering and Mathematics) disciplines. America's Spaceport transports students to NASA's Kennedy Space Center, providing just such an opportunity. Jarvis and Pell (2002) noted that after a visit to UK Challenger Learning Center "it is remarkable that a 2-to-3 hour experience should have been such a lasting positive experience for nearly a quarter of the children with regard to raising their career aspirations to become scientists" (p. 997).

Student feedback and teacher testimonials submitted via the online evaluation system evidence positive results in student interest in STEM after participating in NASA DLN sessions.

This author sees the evidence first hand every time I connect with a group of students on the DLN by watching the looks on their faces.

Interpretations of Inquiry-Based Instruction

Educators frequently have various interpretations of what inquiry learning is along with how they should practice inquiry-based instruction (Camins, 2001). The U.S. Department of Education has noted attention to inquiry-based science curricula since the late 1950s. Discussions of inquiry generally fall into two broad classes of inquiry: describing what scientists do professionally, and as a teaching and learning process. Evaluators from the National Research Council (1996) expressed this dichotomy in the following way:

> A scientific inquiry refers to the diverse ways in which scientists study the natural world and propose explanations based on the evidence derived from their work. Inquiry also refers to the activities of students in which they develop knowledge and understanding of scientific ideas, as well as an understanding of how scientists study the natural world. (p. 23)

Inquiry also refers to the actions of students in the classroom. Students should view themselves as scientists by recognizing science as a process, engaging in activities that reflect the work of scientists, designing investigations, revising knowledge, and understanding how scientists examine and make explanations about natural phenomena (NRC, 2000). Students are often encouraged to use prior knowledge to raise questions about the world around them and predict or formulate hypotheses about explanations and solutions to their questions. They are also asked to design and complete simple investigations, use observations to collect data, develop explanations based on collected data, consider alternative explanations, and communicate findings to other classmates (Biological Sciences Curriculum Study [BSCS], 1994; Layman, 1996; NRC, 1996). Applying an inquiry-based approach can pose challenges when presented with the constraints of a videoconferencing environment. However, using a learning cycle approach to instruction allows teachers to have flexibility when teaching science.

The Learning Cycle

The learning cycle approach to inquiry-based instruction is a widely used inquiry-based format for science instruction providing a structured way to implement inquiry in the classroom (Marek, 2008). This type of inquiry-based instructional methodology engages users in hands-on and minds-on activities throughout instruction providing learners with several opportunities to explore new concepts. Nuthall (1999) supported this approach, suggesting that elementary students need three or four experiences with a topic before they commit the information to long-term memory. These findings indicate that students should have the opportunity to use their prior knowledge and their experiences in an attempt to create new knowledge and understanding. Fur-

Table 1. Summary of the BSCS 5E Instructional Model and Teacher Roles

Phase	Summary
Engagement	Prior learning is assessed and accessed to encourage problem solving, engagement, or the exploration of a new concept. Teacher role: facilitator, lecturer
Exploration	Activities in current topics are provided to encourage and facilitate conceptual change. Teacher role: facilitator
Explanation	Students' attention is focused on explaining their conceptual understanding of the new concept, process, or skill. Teacher role: facilitator, lecturer
Elaboration	Teachers challenge opinions and explanations to encourage a deeper understanding and cognitive engagement of the students. Teacher role: facilitator
Evaluation	Students evaluate their own understanding of their new abilities. Teacher role: facilitator

Note: Adapted from Bybee et al. (2006).

ther research suggested that student achievement, retention, and comprehension improve as a result of using the learning-cycle approach to instruction (Cavallo, 2005). One example of the learning cycle, the 5E model of instruction, draws from prior research in student learning.

5E-Instructional Model

A more widely adopted learning cycle is the 5-E instructional model: engage, explore, explain, elaborate, evaluate (Bybee, 1997). This model was developed in the mid-1980s in part from the previous success of the Science Curriculum Improvement Study model by the Biological Science Curriculum Study and International Business Machines (1989). This model incorporates the three core learning-cycle phases of the Science Curriculum Improvement Study model as its core, but adds engagement and evaluation components to facilitate change.

Pulling it all Together

Adjusting both content and presentation style to incorporate a 5E approach in a regular videoconferencing setting presents a few challenges. The instructor at the far end site is faced with the dilemma of how to adjust the 5E model on the fly. Originally, the 5E model was rooted in the science classrooms that depended on labs for instructional purposes, so some customization of the model is needed in order to achieve learning outcomes. The cyclical nature of the 5E instructional model allows instructors to build on what they have in a classroom, as opposed to trying to shoehorn an approach. For instance, Digital Learning Network presentations are developed to cover approximately 60 min of instructional time. The propensity for not completing a full learning cycle approach in a 50-60 minute block of instruction is very high. Thus, DLN presenters rely on teachers for pre- and post-activities that will make the experience more meaningful for the students when using a 5E approach. Despite evidence that points to using an inquiry-based approach to teach science, the amount of research examining instructional strategies used via videoconferencing suggests room for a closer look.

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"DESPITE EVIDENCE THAT POINT TO USING AN INQUIRY-BASED APPROACH TO TEACH SCIENCE, THE AMOUNT OF RESEARCH EXAMINING INSTRUCTIONAL STRATEGIES USED VIA VIDEOCONFERENCING SUGGESTS ROOM FOR A CLOSER LOOK."

Challenging Our Assumptions About Online Learning

A Vision for the Next Generation of Online Higher Education

Maria Puzziferro and Kaye Shelton

At many higher education institutions, traditional ones in particular, the development and advancement of online degree programs have occurred on the periphery of the academic, financial, and administrative units. For many, online learning has been marginal and slow to become a mission-critical institutional objective. As a result, it has not been fully leveraged as a strategy to increase access to higher education, improve learning outcomes, adapt the culture and values of current and future students living and navigating in a technology-complex and interconnected world, and meet enrollment goals. There are many reasons for this slow progression of online learning into the main-

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stream academy—some a matter of opinion, some a matter of history; however, many reasons are a matter of culture and our own assumptions about online learning.

Online education, as we know it today, is really still in the final stages of its first generation. We have made great strides in establishing online programs across public and private institutions of higher learning. But, as we are stabilizing our assumptions and policies into an established culture of online education, the world around us is changing. Whether we are ready or not, we must be thinking about the next generation of online education.

In order to build our culture of online education and integrate it within the academy, we have adopted many assumptions about various aspects of online teaching and learning. We have chosen to focus on these assumptions around the design of the online learning environment, learning theory, quality in online learning, online faculty, students, and the future of online learning. Therefore, the following questions will guide this article:

1. The online learning environment: Are our online learning environments really student-centered and interactive?
2. Learning theory: Which theories really apply to online learning and are they accurate?
3. Quality in online learning: Do we understand what *quality* is, and do our policies and practices support quality?
4. Online faculty: What is the *real* role of faculty in the online learning environment?
5. Students: Is there such a thing as a profile of the ideal online student?
6. The future of online learning: Will online learning transform the academy?

Assumptions About the Online Learning Environment

Online Learning is "Student-centered," and Students are in Control of Their Own Learning

This is one of the most oft-cited descriptions of the essential nature of online learning. The student-centered approach of online learning is applied in many contexts including learning environment design, marketing to students, and the approach to student services. However, let's examine who may really be in control. First, recent data paint an interesting picture of the priorities that academic leaders see in online education:

1. A recent Sloan-C survey reported that the most cited factor (64%) by academic leaders on barriers to widespread adoption of online learning was that "students need more discipline" to succeed in online courses (Allen & Seaman, 2007).
2. A 2008 survey by the New Media Consortium and EDUCAUSE asked academic leaders to select the top challenges posed to higher education institutions by new technologies, and these were:

    a. Ready access to online facts and research increases the risk that students are graduating without foundational knowledge in some subjects (56%);
    b. Potential increase in student plagiarism (51%);
    c. Students will be more distractible in the classroom due to cell phone and laptop use (49%);
    d. Potential increase in student cheating (48%);
    e. Fragments the traditional sense of campus community (33%);
    f. Too much faculty and administration time is required to adapt

coursework for the online environment (19%); andIncrease in discourteous language or behavior among students toward faculty (11%) (Johnson, Levine, & Smith, 2008).

As we think about the concepts of learner control and student-centered learning, it is interesting that the top concerns among academic leaders are focused on lack of control over student learning (foundational, content knowledge), concerns regarding students cheating, distracted students, and what appears to be a lack of faith in students' ability to learn independently. These concerns don't really support our belief that learning *should be* student-centered.

What about course design? Is there evidence of an orientation toward learner control? In order to answer this question, we need to examine the essential features of the "environment" of online learning. It is typically facilitated through a "learning management system," such as Blackboard, Desire2Learn, and others. Note the key word: "management."

These systems clearly evolved from the need early on to replicate the face-to-face environment online and "manage" content and remote students. In some ways, learners have even less control in the online environment than in the face-to-face environment. Learners have no control over the presentation of content, how the course is structured, what content they see, and in many cases, the sequence in which they move through the course. In addition, there are very effective tools for tracking, monitoring, testing, and literally following every move of the learner; to the point of knowing how long a learner spent on each page of content. One has to wonder who really has the "control" in the online environment?

Common online instructional approaches do not tend to leave much room either for learner control when courses employ "set" content and assessments, such as requiring a certain number of postings and replies each week, traditional textbooks, prescribing multiple written papers, research papers, and tests.

This leads us to the next assumption.

Online Learning is Interactive, Collaborative, and Engaging

These are also common words used to describe the online learning environment. But, is online learning *really* interactive? Before answering this, consider this: Do students log into their Facebook page more or less often than their online course? And, do students have more interaction within Facebook, or within their online course?

The fundamental questions in this assumption are *what is interaction*, and *how can it be measured.* Is interaction measurable in terms of a certain number of clicks, a magic number of e-mail contacts, or a specific number of discussion board postings? Yet, this is how we structure, measure, and evaluate interactivity in the online environment. In many online courses, the heart of interaction is within the discussion board. The current obsession with discussion boards can be reminiscent of being called on in class, not necessarily knowing what to say, but knowing you need to say something!

There needs to be more attention to "authentic" interactivity, and new ways of evaluating the outcome. Students seek this kind of interactivity when their creativity and curiosity are stimulated by a learning experience. This may be indicated by following links via the web, spontaneous conversations with others, and the magical learning experiences that often occur outside of the online classroom, where we unfortunately can't measure it quantitatively.

The truth is that "engagement" is not the same thing as "participation." Participation *can* be an indicator of engagement, but in environments where numbers of

postings are required for a grade, it is hard to determine whether the participation is an indicator of a requirement or of student engagement. Certainly, engagement cannot truly be calculated by a quantitative formula of participation. Our over-reliance on discussion boards is such that we may be missing many opportunities to redefine learner engagement and interactivity in ways that are more "authentic."

Assumptions About the Learning Theory

One Learning Approach Fits All

Does one learning approach fit all students? Most of us would answer this question with an unequivocal no. However, let us examine how higher education is organized on the degree level, and then at the online course level.

With what we know about the diversity of learning approaches, the diversity of experiences that learners bring to the classroom, and the multiplicity of learning styles, it is very surprising that higher education is still using the "course-focused" approach to learning. A degree is an organized and mostly sequenced collection of discrete courses. Often, courses overlap, are irrelevant to each other, and taught by faculty who are only familiar with their own courses and disciplines. If a prior course in the sequence loses its relevance, the opportunity to update the knowledge is lost. It may be time to reexamine the approach to learning, and redefine how degrees are defined in an increasingly complex world.

This "course-focused" approach enables and perpetuates the compartmentalization of learning, and allows no context for the interrelationships among the disciplines. In online environments, this disconnect is compounded by the heavy use of adjunct faculty, who may not participate actively in the faculty culture or have opportunities to interact with each other around academic issues and topics. Many forums for online adjunct faculty interaction are built around online pedagogy (teaching tips and strategies), and not enough around academic, interdisciplinary policies and issues.

The next logical question is why we care whether courses are discrete units and faculty are isolated from each other?

One important reason we should care about this question is because new ways of learning push us to think differently about our "product" (degrees) and our "delivery" (faculty). If so, what is the best method for online learning? Constructivism has been a buzzword in the literature, and linked to effective online learning approaches that incorporate active learning and knowledge construction. The Web 2.0 environment supports constructivist techniques, and with general success, we typically implement pedagogical strategies such as discussions, case studies, and group work to engage students in the process of knowledge construction. However, it may be time to look beyond constructivism and consider what we know about instructional design and how the resources within the digital world may support learning theories, approaches, and cognitive strategies.

Instructional designers are the experts when it comes to designing learning experiences that support learning, and are informed by theories such as constructivism, connectivism, and multiple intelligences. However, in many academic settings, online course design and development is largely faculty driven and instructional design staff act as a resource in service to faculty—not in a leadership capacity. Team-based approaches with more involvement and leadership from instructional designers may help to improve the effectiveness of online courses.

The next generation of online learning will undoubtedly be more connectivist, self-directed, active, and personalized. This next generation of online learning will likely see a move away from the "learning

management system" as we know it. Active learning will become more personalized. Personalized learning environments (PLEs) hold much promise for active learning, and may be a bridge from constructivism to connectivism. In fact, the 2009 Horizon Report noted the "personal web" as one of six technologies most likely to impact individuals' social, professional, and educational activities (Johnson, Levine, & Smith, 2009).

This personal web concept is observed as the desire to reorganize content, rather than just view it and the expectation is that there will be new tools to enable users to customize, organize, and manage content.

Imagine a setting where we take on a less compartmentalized view of courses and faculty collaborate to create shared learning objects, courses that build on each other, learning environments where students can select their own content, bookmark their content into their PLE, refer back to it, apply and integrate content from previous courses to current and future problems.

Possible places to begin:

1. Universities begin to "let go" of their content and not see it as a proprietary product,
2. Not "shutting off access" to previously completed online courses,
3. Finding ways to utilize technology to enable students to save content that they may want to use again, and
4. Creating more collaboration and connection between discrete courses in degree programs and faculty teaching those courses.

Assumptions about Quality in Online Learning

Standardized Course Shells Control Quality

Do standardized course shells control quality? For many institutions, a great deal of time, effort, and money go into the development, design, and control of standardized online courses. The selection of content, assessments, interactive activities, reflective activities, and constructivist techniques comprise a very extensive and lengthy course development process. In fact, educators are passionate about organizing things. When we organize, however, what we do is compartmentalize, categorize, separate, sequence, structure, define, and then enforce students in our version of the "course." Embedded in the existing course development approach is a very instructivist hierarchy (an esteemed "content" expert develops the course, instructional designers assemble the course into a series of learning experiences intended to "teach" students the specific content, and the "institution" then owns it. Once the institution owns the course, instructors—often adjuncts—dispense the courses to students.

What does this mean for the role of instructors in the online environment? Using a rather extreme example to convey a subtle point, consider this phenomenon in the framework of Marx's Theory of Alienation. Marx believed that in modern industrial, capitalistic settings, workers eventually lose control over their work. They create the work and it becomes the property of someone else. The worker begins to feel like a cog in the production wheel, while armies of hired operatives perform the monotonous tasks built upon the basic model. The result is alienation, where the process of production, by its very nature, separates workers from their products (extensions of their creative self), and the very relationships they have with each other. The most tragic result of this is that all workers become estranged from their very human nature, which Marx defined as the freedom to creatively produce, own, and benefit from one's own work. This raises larger and broader issues of how to define curriculum, intellectual property, ownership of content, and the

role of the instructor in the learning process. These issues and questions can only be resolved in the context of the institution itself.

Standardization can provide students with a consistent look and feel, and eliminate issues related to course navigation. However, the impact on teaching and learning must be better understood. "Course shells" do minimize the amount of work involved in preparing courses, and maximizes the volume of course offerings while controlling quality where quality is defined as control over the "product." This practice does stabilize quality, but begs the question of what we assume *quality* to be.

Two, perhaps unintended, effects of standardized course shells are what can be seen as the routinization of online education, which has pros and cons, and the impact on faculty ability to provide effective instruction. Standard curriculum creates a routine, scalable process, and reduces faculty workload in the content area. In fact, in most settings, faculty are not motivated, permitted, or invited to enhance online course "shells." The benefit of this policy may be that faculty are able to concentrate more on interaction and engagement. However, a potential negative consequence is that some faculty may be like the monotonous operatives in Marx's world, and their interaction patterns as they teach courses over and over again are routine. If you define quality as passionate teachers who are committed to engaging students in authentic learning experiences, then there could be a problem with this approach.

Don't misunderstand us—we know that standardized course shells and the linear organization of curriculum are important ways that we control quality and provide a standard measure of student achievement. In fact, we cannot imagine a world without "course shells"; however, we must continue seeking ways to allow faculty and students to bring their talents into the online classroom.

Comparing Face-to-Face and Online Courses Is a Good Way to Determine the Effectiveness of Online Learning

Why does the "no significant difference" phenomenon exist? Could it be because there is no significant difference?

There may be more similarities between online and face-to-face environments than there are differences. Let us look at how are they different and how are they alike.

In a recent study, Kim and Bonk (2006) found that when asked how online quality will be most efficiently measured in the future, 44 % of respondents answered that a comparison of online student outcomes with those of face-to-face student outcomes would be the most effective. The implications of this are interesting: clearly, respondents believe that face-to-face instruction is superior, such that online can and should benchmark against it in order to measure effectiveness.

This question may help us think beyond the traditional indicators of quality and look at more authentic ways to measure more authentic learning interactions. For example, we appear to be locked on the following components and assessment methods, not mattering if we are in a face-to-face environment or an online environment:

1. Interaction = measured by discussion/ participation
2. Critical thinking = measured by case studies, papers, and reflective essays
3. Comprehension of content = measured by online quizzes and exams
4. Synthesis = measured by research papers.

These are classroom-based benchmarks, and as we release these and redefine online learning assessments, then we can begin to think about new ways to evaluate learning in the online environment, and not just within the "Blackboard" environ-

ment. Some new ways to begin to think about online learning benchmarks are:

1. Student ability to spontaneously and intuitively apply course material in real contexts.
2. Interaction that is motivated by interest, rather than quantitative participation requirements.
3. Interaction beyond the discussion board and beyond the course.
4. Collaboration that is individually-driven and comfortable; rather than forced groupwork with assigned groups that hasn't worked in the face-to-face classroom, and is even worse in the online classroom.
5. More emphasis on student-created content, and less on static, instructor-developed, or "canned" content.
6. Student ability to make connections between disciplines and knowledge domains.

Assumptions About Online Faculty

Online Instructors Should be the "Guide on the Side," not the "Sage on the Stage"

If you are taking a course, do you *really* want your instructor to be the "guide on the side?" This phrase has been used extensively in online education to define the "proper" role of the instructor in online learning environments. However, what it suggests is an instructor who is on the side, not in a leadership position.

We know now that one of the most significant complaints of students in the online environment is not receiving enough direction from the instructor, a lack of responsiveness of the instructor, and a lack of feedback. Have instructors taken the "guide on the side" too far? Some have, in spite of research that shows when teaching presence is high, students are more successful, feel more connected, and learning outcomes are improved (Shea, Li, & Pickett, 2006).

This assumption needs to be examined from two perspectives—first, what is the culture of faculty development, and how are faculty engaged in the culture, and second, there may be no single role of the instructor.

Our faculty development, orientation, and evaluation methods create a culture that faculty must identify and can reconcile their role with. For example, some areas of cultural alignment are:

1. Attitudes toward nontraditional students.
2. Views about how to balance flexibility and academic integrity.
3. Strategies for working with "difficult" students.
4. Perceptions about the various roles of the faculty member in an online classroom.

The role of the instructor may be more a matter of culture than an "either/or" question. Anyone can learn how to use a learning management system, but the understanding of the culture of online learning, and how to move between roles in a collaborative way is something that needs attention and careful development.

To this end, we would propose that we move away from "training" faculty to be neither a "sage," nor a "guide." Other words have also been used to describe the role of the instructor in the online learning environment, such as a mentor and facilitator. There are indeed many roles that faculty must play in the online environment and at different times; therefore, they need to have the skill and ability to know when to be a leader, a guide, an authority, a scholar, a manager, and an advisor.

As we develop faculty and faculty culture, it is important to cultivate an environment of shared and collaborative decision making. This will mean that we get out of the mindset of "training" faculty and into a mindset of "developing" faculty.

Faculty Workload Issues do not Apply to Adjuncts

Does it take more time to teach online? There is perhaps no other issue in online education more controversial than faculty workload. Compared to face-to-face teaching, the time it takes to develop and teach online may be greater, though by how much is unclear. This aspect of workload (i.e., it takes more time to teach online) is often cited by fulltime faculty as a deterrent to online teaching.

Much of our online load in higher education is taught by adjunct faculty. This raises two obvious questions:

1. How do online adjunct faculty manage the workload, many of whom are "professional adjuncts" teaching as many as 10 courses concurrently?
2. If we know it takes more time, then why do we continue to raise class size?

So, how do instructors do it? Especially, how do online faculty who are teaching multiple classes and perhaps even holding down a fulltime job manage such workload? Though most of us will not admit it, they essentially cut corners, and we tend to see the symptoms of this in student evaluations. Faculty responsiveness and quality of student feedback remain the critical quality issues in online education.

Most troubling is that many institutions have increased class sizes, which translates to an unrealistic workload for faculty, and ultimately compromises their ability to give extensive and meaningful feedback to students let alone build the learning communities and student engagement that we value and seek to create. Consider a typical 25-student class with a weekly student workload of two short papers, and discussion participation with a minimum of 2 posts per week per student. This translates a single week of work into 50 papers, a minimum of 50 discussion postings to read and respond to at least half of them, and 25 sets of discussion postings to grade.

These are problems that, in order to solve, require a much more holistic review, rather than simply evaluating the problems as faculty performance issues. In reality, we should do more to understand the impact of workload issues on adjunct faculty, their professional lives, and their instructional practices.

These points are not intended to advocate for a reduction in all class sizes, as there are many factors that play into the decision, but we must review faculty workload issues with a realistic eye, and consider the issues in the context of the quality of the student experience. Still, many online courses contain "busywork" for students, which translates to "busywork" for faculty, and both faculty and learners are distracted from the transformative process of teaching, learning, and building collaborative communities. As administrators, we must ensure that our expectations are not only reasonable, but support the accomplishment of the goals we intend.

Assumptions About Students

There is a "Profile" of the Online Learner

Is the profile of the online learner a smiling single mom, holding a baby in one hand and a laptop in the other? It is quite possible that we have unduly categorized online learners into a strangely happy and homogenous group. This is obvious in marketing materials, which tend to portray young people juggling groceries, babies, files, and a laptop—yet smiling and seemingly unstressed as they are reaching their educational goals in their pajamas.

According to a 2002 National Center for Education Statistics (NCES) report, nontraditional students make up 73% of all students enrolled in undergraduate programs, and 39% of all undergraduate students are 25 years or older (Choy, 2002).

We typically define nontraditional students as having at least one or more of the following characteristics:

1. Delayed entrance or later return to higher education,
2. Attends part time,
3. Works full time,
4. Is considered financially independent,
5. Has dependents other than self,
6. Is a single parent,
7. Has a GED.

Defined in this way, nontraditional students can be anyone and everyone. There is no homogenous profile of the online learner, but what does this mean for online education?

First, it means that we must not allow marketing materials to influence our assumptions about online learners. The stress of balancing education with life does not produce smiling people holding babies and laptops.

Second, we must continue to learn more about our students and how to best meet their educational and professional needs. The diversity of demographic characteristics and experiences that online, nontraditional students bring to the classroom are invaluable, but we must help faculty know how to leverage this diversity, rather than allow it to become a detractor or challenge in the learning environment. We can also look forward to the online classroom becoming more diverse and multicultural, and we should be continuously examining and reexamining the learning environment, student support services, course design, and faculty development for ways to serve an increasingly diverse student body.

Assumptions About the Future of Online Learning

Those Who Oppose, Doubt, or Resist Online Learning Must be Converted

Are there two "camps" in your organization—those who adopt online, and those who resist? Do you feel like it is your mission to convert the resistors?

First of all, online learning is not about technology. It is about a new paradigm of learning—what learning is, how we define it, how we assign value to it, and what purpose it serves to society. The question of how we facilitate it is secondary.

Sometimes, "online advocates" forget that we are all in this together. While we may believe that we are a special, more enlightened group, we do need to recognize that the "resistors" (who happen to also think they are a special, more enlightened group) want the same things as we want. As we are all serving students, it is important to shift the focus from process (teaching) to outcomes (learning). As educators, we tend to value process, not product. All of our salient issues in higher education are about process. Curriculum committees, governance structures, regulatory processes, evaluation systems, tenure and rank issues, intellectual property issues, which technologies to use…. All of these issues are part of the complex web of the sometimes very contentious and adversarial relationships between administration and faculty over the issue of controlling the process.

Perpetuating this rift in the academy does not move us closer to understanding learner goals and innovative ways to meet those goals. While we continue these squabbles in the ivory tower, this may very well be the reason the traditional academy is lagging in entering the online market, and for-profit higher education is a burgeoning business. They clearly understand learner outcomes and have built processes to support those outcomes, but we cannot get past the process arguments to even realize that we all want the same outcome. Understanding that there is no "conversion" necessary will help us to have the dialogue and conversations that will develop healthier understandings and build shared visions and shared goals.

Online Learning Will Transform the Traditional Academy

Will online learning transform higher education and the traditional academy? The bottom line is that we need new values to support new learners. In fact, the growing complexity of the modern world cannot be ignored, and we experience it in the changing demographic landscape, the evolving job market, economic development initiatives, the demand for workforce and executive leadership programs, and more adult (or career-oriented) students participating in higher education. Clearly, a major factor is that in the changing global economy, the competitiveness and success of the United States depends on educating and re-educating the workforce and this propels more adult students into higher education. Online education works quite well for adult students, for the obvious reasons of time, convenience and geography. However, the presence of adult and nontraditional students in higher education has created some interesting challenges to the university, as we know it.

Online communications technology has inarguably reached a critical mass. In fact, a 2009 survey by the Pew Internet and American Life Project found that 74% of all American adults and 93% of teens use the Internet (Jones & Fox, 2009). Further research from the Pew organization has noted that 82% of Americans have cell phones and 69% have used cloud computing (Horrigon, 2008). Because of this, the pedagogical, financial, and philosophical implications for higher education are vast. However, online learning is still slow to become a mission-critical initiative at many higher education institutions. There are many reasons for this apparent slow progression of online learning into the mainstream academy—some a matter of opinion, some a matter of history—but many a matter of culture.

Culture is the collective expression of shared values. Here is an example: in the traditional academy, "quality" is characterized by slow, thoughtful, careful action and only after much collaborative deliberation and debate. Committees, meetings, the precision of filing forms, and task forces are all concrete examples of how the traditional academy enforces quality. If something takes a long time, the assumption is that it must have gone through a rigorous, quality process. However, the paradox is that the quality process impedes its own purpose, especially when you define quality education as the provision of access to high-quality, career-relevant degree programs that truly serve the evolving needs of our learners and our future workforce.

Interestingly, private, for-profit postsecondary institutions continue to experience the highest percentage of growth among nontraditional students (Choy, 2002). In the 2008-2009 Almanac edition of *The Chronicle of Higher Education*, the University of Phoenix was reported to enroll more students than any other university in America. A recent *US News and World Report* reported that the largest business program in the United States is offered by the University of Phoenix ("The Largest Online Grad Programs," 2009). Among education programs, the largest five, in order, are Walden University, University of Phoenix, National University, Nova Southeastern University (private, not-for-profit), and Capella University.

Whatever you think of for-profit, proprietary schools, the fact remains that nontraditional students choose (remember, they have many choices … some a lot less expensive) to go there to meet their academic goals.

It may be a stretch to predict that online learning, let alone nontraditional students, will change the traditional academy. If we look at the essential values of higher education, we can see a clear mismatch between the values of professional, adult, and nontraditional students and those of the traditional academy. Table 1 presents a few of the ways in which these values clash.

Table 1. Essential Values of Higher Education

	Traditional Higher Education	Next Generation of Higher Education
Quality	• Quality is indicated in the process • Endeavors that take a long time and go through a difficult process, with multiple gatekeepers equals a high-quality product	• Quality is indicated by the outcome • A high quality product is a high-quality product, despite the process
The nature of "learning"	• "Contact hours" • Learning is structured into sequenced, discrete "courses" which are the property of the university • Learning is something that is done to students	• "Learning hours" • Learning is a structured, but synergistic connection between disciplines and knowledge domains, which generate ideas that individuals take ownership of • Learning is something that students experience
Role of faculty	• Faculty vs. administrators • Faculty personal and professional satisfaction and tenure systems form the collective heart of the university	• Faculty as part of the organization • The personal and professional satisfaction of faculty, students, staff, and community stakeholders form the collective heart of the university
Role of students	• Students as consumers and products • Students are a homogenous group that can be served with the *same* class formats, instructors, and same support services	• Students as customers and key stakeholders • Students are a highly diverse group that need more personalization of and within class formats, instructor styles, and support services
Role of the institution	• Institution of higher learning • Traditions provide the organizational foundation	• Organization of higher learning • Change and innovation provide the organizational foundation
Nature of authority	• Authority is established by position and title	• Influence, impact, and inspiration replace authority and are established by an individual's actions and ability to inspire others for the greater good of the organization

So what part do we play in this? As distance learning administrators, we need to consider the following implications:

1. How can we make online learning more student centered?
2. Is this the end of the "learning management system" and the rise of the "personalized learning environment?"
3. What new assessment measures are needed to assess engagement, interaction, self-directed learning, and learner control?
4. What new theories of learning are needed to propel us to the next generation of online learning?
5. Have we boxed the definition of quality into only the things we can measure?
6. Is there no significant difference between face-to-face and online learning because there is no significant difference?
7. How can we best support faculty in moving toward a less defined and more dynamic role in the online classroom?
8. What is the future of online learning for traditional higher education?
9. Should traditional universities just step aside and leave it to the for-profits to step in and serve nontraditional students?

We need to seriously contemplate these questions. Why? We don't want to lose our relevance. According to a recent Chronicle Research Services report, *The College of 2020: Students,* "colleges that attempt to cram their styles down students' throats on the basis that it is "good for them" may quickly find themselves uncompetitive in the new higher-education universe" (Van de Werf & Sabatier, 2009, p. 7). While some may believe this is just hype, can we afford not to take it seriously?

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"… COLLEGES THAT ATTEMPT TO CRAM THEIR STYLES DOWN STUDENTS' THROATS ON THE BASIS THAT IT IS 'GOOD FOR THEM' MAY QUICKLY FIND THEMSELVES UNCOMPETITIVE IN THE NEW HIGHER-EDUCATION UNIVERSE."

Effect of Student Location on Assessment of Instruction and Grade Assignment

Bassam Shaer, Mohamed A. Khabou, and Andreas Fuchs

Introduction

Distance/remote education has evolved since 1982 when Penn State offered a distance education program that utilized the U.S. Postal Service to deliver instructional material (Carnevale, 2000; Mirakian & Hale, 2007). Distance education encompasses interactive audio, video, and lecture material between multiple locations. Numerous authors have investigated different distance learning environments (Blackwood 1968). Spooner (1999) define distance education as any form of education that geographically separates students and instructor and requires communication through media. Nowadays, media is often interaction through the Internet via video, audio, Web technologies, and e-mail.

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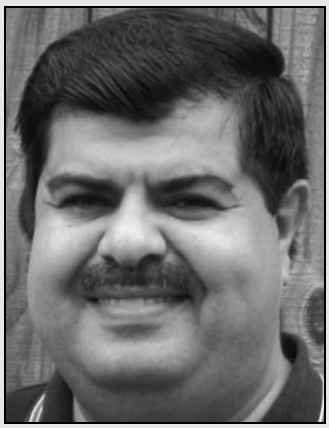

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The University of West Florida (UWF) offers Accreditation Board for Engineering and Technology (ABET) accredited undergraduate programs in electrical engineering and computer engineering. Until December 2008, the engineering programs were joint programs with the University of Florida. UWF, with a student body of approximately 10,000, has its main campus in Pensacola but has a strong presence in areas to the east through its Emerald Coast branch campus locations. The largest of these branch campuses is located in Fort Walton Beach (FWB) due in large part to the proximity of Eglin Air Force Base and associated contractor companies that require a highly skilled engineering workforce. Many degree programs offer courses at UWF Emerald Coast locations (e.g., criminal justice, teacher education, hospitality management, computer science, etc.), but, due to a unique delivery method, the engineering department offers a complete degree program that includes all required laboratory courses.

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Approximately seven years ago and primarily due to the needs of the Air Force as well as supporting contractor companies, UWF began offering its electrical engineering and computer engineering programs in FWB using a synchronous distance education model. At the outset, no faculty were located in FWB and all classes were delivered from Pensacola. Now, three full-time and one adjunct faculty out of an engineering faculty body of seven full time and two adjuncts are resident in FWB.

Due to the demanding nature of an engineering curriculum, all lecture courses in the UWF engineering program are offered in an interactive distance learning studio (IDLS) and not in the increasingly common asynchronous, self-paced learning environment. The UWF IDLS, which employs commercially available equipment from AMX, CTGaudio, and Polycom, uses a dedicated data connection that reserves 3Mb/s for real-time audio and video and an additional 3Mb/s for data. In this setting (Shaer & Fuchs, 2008), the instructor, with the help of facilitators at both locations, simultaneously delivers a lecture course to students in Pensacola and FWB while being present in Pensacola or FWB. The audio and video connection allows the faculty member to see, hear, and interact with students at both ends with the same capability afforded to the students. Using a Tablet PC, the data connection allows the instructor to present lecture notes via an electronic whiteboard or PowerPoint as well as to utilize engineering software through use of a commercially available projection system in both classrooms. The system also allows lecture audio and data to be recorded so that students can review lectures at a later date.

Statement of the Problem

Some ECE faculty observed that there appeared to be a difference in how students evaluate instructors and how instructors assigned course grades

depending on whether the students are at the "near" or "far" location. The "near" location is defined as the location where the instructor is physically present and from which the instruction originates. The "far" section is the remote location connected via the IDLS system. As such, the purpose of this study was to gather empirical evidence on the impact of the students' location in an IDLS setting on their assessment of instruction and on the course grade they earn. The study investigates the following research questions:

1. Is there an empirical difference in the way students at the near and far locations assess the course instruction?
2. Is there a difference in the way instructor assign course letter grades to students on the near and far sides?

Methodology

The study was conducted at the ECE department at UWF. It includes a total of 59 engineering courses taught using the IDLS classrooms at Pensacola and FWB during 5 semesters from Spring 2006 to Spring 2008. Each course included in our study had two sections: the near section and the far section. Out of the 59 courses considered in this study, 31 were taught from Pensacola and 28 were taught from FWB. The total enrollment in these classes was 1691 students: 877 on the near side and 814 on the far side. The average enrollment in each course was 29 students: 15 at the near side and 14 at the far side. The classes were all ECE classes and ranged from the introductory-level to the senior-level. The classes were taught by a total of 15 different instructors.

The data related to assessment of instruction were collected from the summary forms of the standard Student Assessment of Instruction (SAI) surveys that students fill in for each class at the end of the semester. A total of 1,077 SAI forms were completed: 583 on the near side and 494 on the far side. This constitutes a response rate of 66.5% on the near side and 60.7% on the far side. At the end of the semester after final grades are assigned, instructors are given a summary of their SAI survey for each class they taught and a copy is made available to the public at UWF library (a sample is shown in Figure 1). As can be seen in Figure 1, the SAI survey contains eight entries pertaining to how students felt about the instruction of the class and their overall assessment of the instructor. These entries are:

1. Item 1: Expression of expectations for performance in this class
2. Item 2: Description of course objectives and assignments
3. Item 3: Communication of ideas and information
4. Item 4: Stimulation of interest in the course
5. Item 5: Facilitation of learning
6. Item 6: Respect and concern for students
7. Item 7: Availability to assist students in and out of class
8. Item 8: Overall assessment of instructor

Students rate each item on a scale of Poor to Excellent. In our study, we assigned the numeric value 4 to the rating of *Excellent*, 3 to *Very Good*, 2 to *Good*, 1 to *Fair*, and 0 to *Poor*. The average section response (*AR*) to any of the eight items in the SAI form was computed as a weighted average of these equivalent numeric values:

$$AR = \frac{4E + 3VG + 2G + F}{E + VG + G + F + P} \qquad (1)$$

where E, VG, G, F, and P represent the number of students who rated that item as Excellent, Very Good, Good, Fair, and Poor, respectively.

Data related to student grades in the classes included in our study were gathered from official student grade summaries

that were obtained from UWF registrar office without any student identifiers to protect the privacy of the students. In our study we (and UWF) assigned the numeric value 4 to a grade of A, 3.3 to B+, 3 to B, 2.3 to C+, 2 to C, 1.3 to D+, 1.0 to D, and 0 to F. Because the University of Florida grading system does not accept "minus" grades (e.g., B-), instructors were asked not to assign "minus" grades in engineering classes. If assigned, "minus" grades were automatically rounded up to the next full letter grade. The average section grade (AG) is computed as:

$$AG = \frac{4A + 3.3Bp + 3B + 2.3*Cp + 2C + 1.3Dp + D}{A + Bp + B + Cp + C + Dp + D + F} \qquad (2)$$

where *A*, *Bp*, *B*, *Cp*, *C*, *Dp*, *D*, and *F* represent the number of students in the section who were assigned the course grades of A, B+, B, C+, C, D+, D, and F, respectively.

We analyze and compare the means of the data collected on the near and far sides using the *T* statistic test (Milton & Arnold, 1990) with $n=59$ and $\alpha = 0.05$.

Results

The means (μ), standard deviations (α) and obtained t statistics for the near and far sides of items 1-8 on the SAI and the course grades are shown in Table 1. As can clearly be seen in Table 1, there is very strong statistical evidence (*t* values ranging from 3.041 to 4.508) that students at the near site rate instructors/instruction higher than students on the far side of the same class. Consistently, students at the near side rated items 1-8 of the SAI 0.4 to 0.6 points higher than students on the far side. This trend was consistent throughout the 5 semesters covered in this study (see Figures 2-6). If we combine the averages of items 1-8, we can also see the same trend

Table 1. Near and Far Side Comparison of SAI Evaluations and Course Grade

	Near Side (n = 59)	Far Side (n = 59)		
Evaluation Area	Mean (*SD*)	Mean (*SD*)	Obtained *t* value	$t_{0.05}$ value
Item 1 on SAI	3.248 (0.546)	2.815 (0.682)	3.807	1.6587
Item 2 on SAI	3.246 (0.633)	2.833 (0.721)	3.307	1.6583
Item 3 on SAI	3.188 (0.720)	2.755 (0.823)	3.041	1.6583
Item 4 on SAI	3.067 (0.723)	2.645 (0.761)	3.084	1.6581
Item 5 on SAI	3.201 (0.686)	2.685 (0.739)	3.931	1.6582
Item 6 on SAI	3.335 (0.629)	2.885 (0.735)	3.572	1.6585
Item 7 on SAI	3.222 (0.667)	2.611 (0.801)	4.508	1.6586
Item 8 on SAI	3.259 (0.724)	2.725 (0.870)	3.625	1.6586
Course grade	2.996 (0.515)	2.808 (0.645)	1.754	1.6587

STATE UNIVERSITY SYSTEM
THE UNIVERSITY OF WEST FLORIDA
STUDENT ASSESSMENT OF INSTRUCTION

INSTRUCTOR'S NAME		YEAR/TERM
[redacted]		2006/Spring
DEPARTMENT	COURSE-SECTION NUMBER	COURSE NAME
ELEC & COMP ENGINRNG	EEL4657 0624	LINEAR CONTROL SYS
NUMBER OF STUDENTS ENROLLED	NUMBER-RESPONDING	% OF RESPONSE
16	11	68.75

ITEMS	STUDENT RESPONSES (PERCENTAGES) SEE KEY BELOW					
	E	VG	G	F	P	NR
(1) EXPRESSION OF EXPECTATIONS FOR PERFORMANCE IN THIS CLASS	54.55	27.27	18.18	0.00	0.00	0.00
(2) DESCRIPTION OF COURSE OBJECTIVES AND ASSIGNMENTS	63.64	36.36	0.00	0.00	0.00	0.00
(3) COMMUNICATION OF IDEAS AND INFORMATION	72.73	18.18	9.09	0.00	0.00	0.00
(4) STIMULATION OF INTEREST IN THE COURSE	45.45	27.27	18.18	9.09	0.00	0.00
(5) FACILITATION OF LEARNING	72.73	9.09	18.18	0.00	0.00	0.00
(6) RESPECT AND CONCERN FOR STUDENTS	81.82	0.00	18.18	0.00	0.00	0.00
(7) AVAILABILITY TO ASSIST STUDENTS IN OR OUT OF CLASS	81.82	0.00	9.09	0.00	9.09	0.00
(8) OVERALL ASSESSMENT OF INSTRUCTOR	81.82	9.09	9.09	0.00	0.00	0.00

KEY TO RESPONSES: E=EXCELLENT; VG=VERY GOOD; G=GOOD; F=FAIR; P=POOR; NR=NO RATING

Figure 1. Student assessment of instruction summary form.

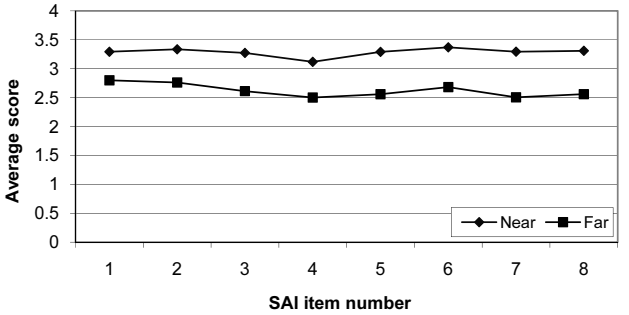

Figure 2. Comparison of spring 2006 SAI items.

every semester during the period of the study (Figure 7).

As for class grade assignment, there is also statistical evidence, even though not as strong as that for the assessment of instructions (t value = 1.754), that students on the near side were assigned, on average, higher course grades than those on

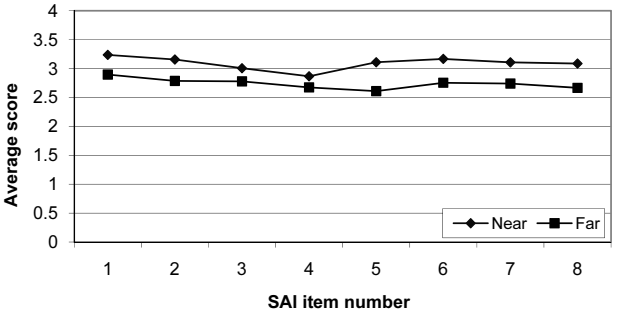

Figure 3. Comparison of fall 2006 SAI items.

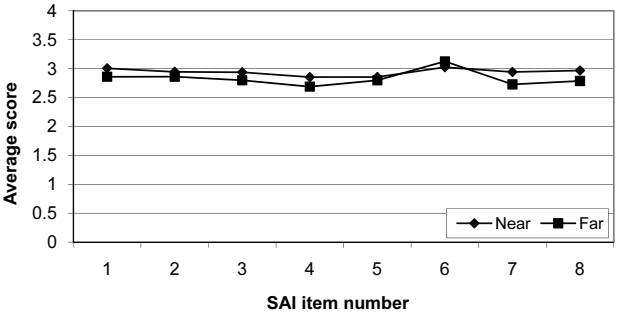

Figure 4. Comparison of spring 2007 SAI items.

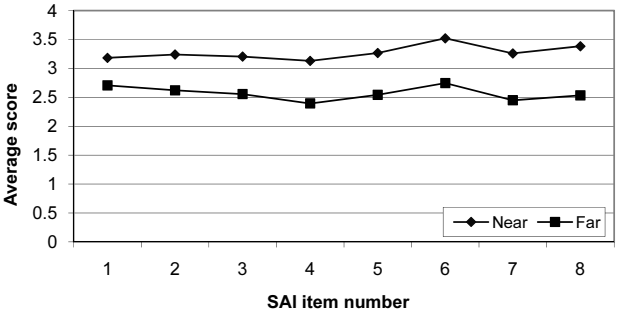

Figure 5. Comparison of fall 2007 SAI items.

the far side (μ = 2.996, σ = 0.515 vs. μ = 2.808, σ = 0.645). This trend was consistently observed throughout the 5 semesters covered in this study (Figure 8).

Discussion

Based on our statistical analysis of empirical data gathered from spring 2006 to spring 2008, we can confidently say that

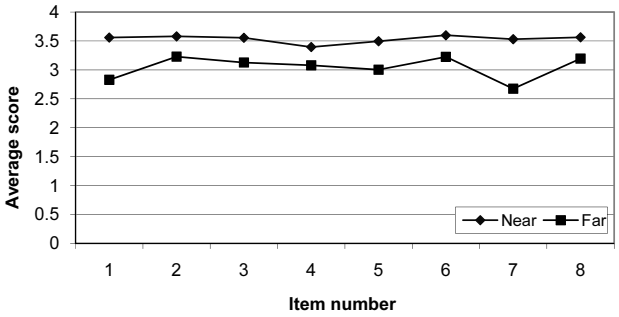

Figure 6. Comparison of spring 2008 SAI items.

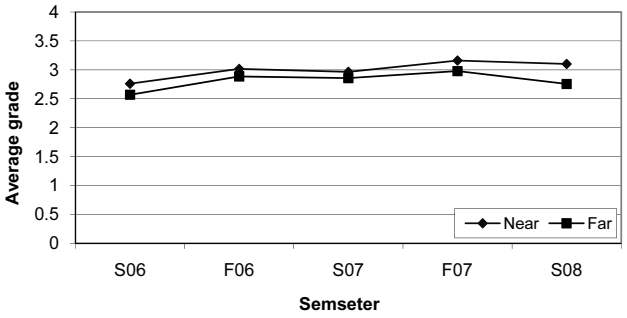

Figure 7. Comparison of aveage semester grades.

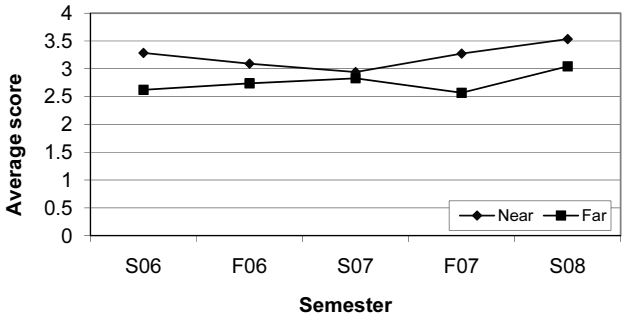

Figure 8. Comparison of average semester assessment.

there *is* a difference in the way students on the near and far sides evaluate course instruction. The difference was consistent over the five semesters we conducted this study. What is really interesting is that this trend was observed in courses that did not involve actual instruction. For example, in the senior design classes, there is no instruction per se; the role of the instructor is usually scheduling dates for project demonstrations, oral presentations, gathering student work, mentor evaluations of the projects, and so on. As can be seen in Figure 9, there is similar difference in

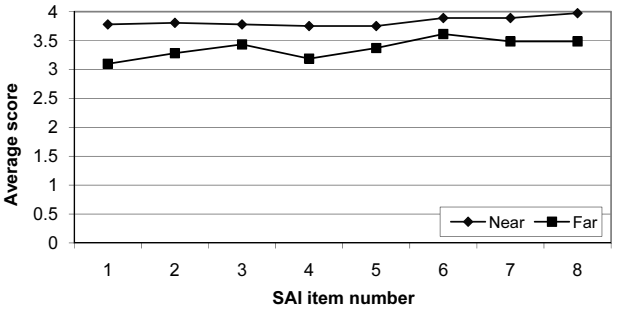

Figure 9. Comparison of senior design SAI items.

"instruction" evaluation for this type of class as seen in other "regular" classes. Even though it was not our goal in this study to investigate the reasons behind this trend, one has to wonder why. Is there an inherent bias against instructors on the far side compared to those on the near side? Do students dislike not having direct, face-to-face access to the instructor? Does the IDLS setting feel impersonal?

Even though we also observed a consistent difference in grade assignment to students in the near and far sides, it was not as pronounced or as statistically significant as the difference of student evaluation of instruction. As with the first finding of this study, our goal was not to explain the reason behind this trend. Is there an inherent bias against students on the far side compared to those on the near side? Are students on the far side not learning as much as the students on the near side? Do they feel left out as they are not sitting in the same room as the instructor? Does the lack of direct, face-to-face access to the instructor hamper their understanding of the course material?

Conclusion

Our study showed that there is a difference in how students evaluate instructors and how instructors assign course grades depending on the location of the students. However, our study did not investigate the reasons behind this trend. This study answered two important and crucial questions, but left many questions unanswered. These questions are definitely worthy of future research.

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"OUR STUDY SHOWED THAT THERE IS A DIFFERENCE IN HOW STUDENTS EVALUATE INSTRUCTORS AND HOW INSTRUCTORS ASSIGN COURSE GRADES DEPENDING ON THE LOCATION OF THE STUDENTS. HOWEVER, OUR STUDY DID NOT INVESTIGATE THE REASONS BEHIND THIS TREND."

Why Virtual Schools Exist and Understanding Their Culture

Sherry Marrotte-Newman

Introduction

With technology rapidly changing, the demand for and dependency on various instructional tools continue to increase in the educational environment. The new technologies have also afforded innovative communication and instructional possibilities (Debevec, Shih, & Kashyap, 2006). From television to online education, new technologies have proven to maximize the depth, accessibility, and flow of information to students (Tinker, 2000). Therefore, technology should evolve as a powerful teaching tool that can provide students access to resources and equip them with the support necessary to build twenty-first century skills.

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Distance learning has been in existence for many years. Initial distance education efforts began with media such as radio, correspondence through mail, and then through videoconferencing. The Internet eventually became a popular medium for online instruction and learning. While online college courses were common, virtual K-12 schooling was still somewhat new. It was not until the mid-1990s that virtual schools began to use the Internet to offer online courses. Some schools implemented the changes due to the improvements in technology and changes in the student demographic, such as home schoolers, elite athletes, or remote areas where schools are not able to provide students access to certain content areas.

Virtual schools, distance education, e-learning, and online learning are all terms that are used synonymously to describe the changing field of nontraditional instruction (Saba, 2005). These terms may confuse individuals who are unfamiliar with technology-based delivery methods. Although various definitions exist, the most commonly published definition is by the Association for Educational Communications and Technology (AECT). According to Schlosser and Simonson (2002), AECT

defines distance education as "institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors" (p. 1). The four major components of the definition of distance education are: (1) the program is institutionally based; (2) there is separation of teacher and student; (3) there is some form of interactive telecommunications; and (4) the instruction includes varied resources and environments that facilitate learning (Schlosser & Simonson, 2002).

Online K-12 virtual programs offer a new learning environment that transcends the traditional brick and mortar buildings of the past. Types of virtual school programs that target the K-12 population depend on such factors as the number of students served, programs offered, and whether it is full-time or part-time, virtual schools that target the K-12 population are operated by five basic types of online programs: (1) schools operated by regional agencies and consortia of educational entities, (2) schools operated by state education agencies, (3) schools operated by universities, (4) schools that are operated by local public schools, and (5) schools that receive a charter from a local district, state board, or university (Watson, Winograd, & Kalmon, 2004). Although this is not an exhaustive list, virtual schools are usually categorized under one of the five basic types of online programs (Watson et al., 2004).

A virtual school consortium is usually a combination of institutions participating in a joint venture to offer online courses. Such partnerships often require the participating schools to provide a teacher for one period a day in exchange for a set amount of students to take online courses. The International Association for K-12 Online Learning (iNACOL) (2009) defines a state-led virtual program as an online program that is created by legislation or by state-level agency and/or administered by the state education agency for the purpose of providing online learning opportunities across the state. Most state-led programs do not offer a diploma; therefore, students are required to be enrolled in a traditional school. University-based online programs or K-20 initiatives allow K-12 students to take college courses as part of a joint venture with universities and community colleges. Traditional face-to-face schools offer virtual programs as part of their local district. In addition, there are online public charter schools run by private organizations. They are usually government funded and follow government regulations; however, virtual charter schools typically use a commercial curriculum.

According to the Center for Digital Education (2008), 24 states offer a state led program, seven states offer online learning statewide, and 14 states have no program in place. Beyond the state-led programs, online charter and multidistrict programs become increasingly popular (Center for Digital Education, 2008). With focus on improving traditional education, the National Education Technology Plan proposes seven key objectives to implement change in schools: (1) strengthen leadership, (2) utilize innovative budgeting, (3) improve teacher training, (4) support e-learning and virtual schools, (5) encourage broadband access, (6) progress toward digital content, and (7) improve achievement by student data management (U.S. Department of Education, 2005). The emphasis on supporting virtual schools in public education demonstrates a need to adapt to the changing needs of students. According to the U.S Department of Education (2001) under the No Child Left behind Act, "a virtual school can be among the schools to which eligible students are offered the opportunity to transfer as long as that school is a public elementary or secondary school as defined by state law" (p. 13).

As an alternative to traditional public school, K-12 virtual schools offer a custom-

ized environment that can be rigorous for the student who is looking for a challenge, or a self-moderated pace for the student that might need a little extra time (Barbour, 2008). According to Susan Patrick (2009), president and chief executive officer of iNACOL, the key benefit of virtual schools is that every student has access to the best education possible. By providing flexibility with time, location, and learning style, virtual schools provide individual online instruction and access for students who might not have the opportunity to take certain courses within their school setting or schedule. In other words, virtual schools can fill a gap and offer important resources to students by providing access to education.

While online learning could involve a single course or even a single lesson, a virtual school is a complete educational institution that delivers instruction primarily online. The first two large-scale virtual schools in the United States were Florida Virtual School (FLVS) and Virtual High School (VHS) in Concord, Massachusetts (Rice, 2006). In 2006, Michigan became the first state to mandate virtual learning, with the mission of providing each student with a virtual learning experience prior to high school graduation (DiPietro, Ferdig, Black, & Preston, 2008). The number of virtual schools is expected to continue growing.

This steady increase presents exciting possibilities, but also daunting challenges. Some reasons for choosing virtual schooling include flexibility in scheduling, convenience, self-paced learning, and access to courses not offered at their local school (Rice, 2006). However, funding problems result in major growth impediment for virtual schools. Most money issues center around operating, administrative and marketing expenses, course development, and acquisition of hardware and software. Only a minority of states are considered virtual school friendly. Florida and Illinois, for example, have legislation that allows for virtual school growth (Center for Digital Education, 2008). Other states, including Wisconsin and Pennsylvania, have legislation that allows for the creation of virtual charter schools (Center for Digital Education, 2008). Other challenges for virtual schools include authenticity, responsibility, accountability, and accreditation.

In addition, virtual schools must address issues such as enrollment boundaries, class size, accountability, and funding. In order for these concerns to be resolved, virtual schools must develop appropriate policies. Few schools have developed and enforced policies that address issues that are unique to virtual schools (Hassel & Terrell, 2004). For any school to exist, it must have policies that are in place and can be enforced.

Commercialization of online education results in additional challenges. The initial process of online course delivery is complex and expensive because it requires certified teachers who need software development skills (Barbour, 2006). Blackboard, eCollege (formerly Real Education), and Embanet, among other commercial entities, provide an array of design, development, and administrative support for online course development. There are typically three types of online commercial entities: providers of course tools, providers of groupware, and providers of administrative support. Development and ownership of online teaching material poses issues for many. Issues of copyright, ownership, and fair use arise between the school and the commercial vendor.

Most virtual school programs construct courses that meet the highest standards, offering a highly interactive learning environment, certified teachers, and a program that serves varied learning styles and intelligences. The courses are usually web-based, facilitated by a teacher and provide both asynchronous and synchronous delivery. In a study of distance education use in rural schools, Hannum, Irvin, Banks, and Farmer (2009) reported that the most common K-12 subjects taught using a vir-

tual environment are foreign language, mathematics, English, psychology and/or sociology, and U.S. history. Like traditional schools, virtual schools have a curriculum, faculty, students and, most of the time, administrators or governing boards. Once the model for advanced placement classes and remedial courses, virtual schools now provide supplemental coursework, and core curriculum.

With technology playing an integral part in everyday life, students expect technology to be used throughout instruction to create authentic application (Bedard & Knox-Pipes, 2006). Understanding instructional design as it relates to integration of technology helps teachers recognize the pedagogical issues when using technology to enhance the process of teaching and learning (Okojie, Olinzock, & Okojie-Boulder, 2006). According to Simonson (2008), distance education is not about the technology but rather the techniques, methods, and approaches of course design and instructional delivery that make it an effective learning environment. Clearly, technology plays a key role in the delivery of distance education; however, schools need to remain focused on the instructional outcomes that the media provide. Educators should focus on content and needs of the learner, and then determine the best instructional delivery method. When the focus is on how to teach the content, the instructor can make a better decision on which technology is best suited for the delivery method. The National Education Associatioan (NEA) (2006) concludes that for distance education to be successful, the focus must remain on teaching and learning, and not as much on the medium.

When the instructional goals and objectives are clearly defined, the technology resources can be identified. As distance education defines the Internet as its medium of choice, the instructional focus moves toward an interactive student-centered learning environment. Online courses offer flexible and unlimited access to course content, resources, and instruction. The materials can also be presented to accommodate a variety of learning styles. According to Keegan (1996), one main character that sets distance learners apart from traditional classroom learners is their autonomy. Overall, the greatest benefit of virtual courses might be the students' feeling that they control their learning.

The steady growth rate of virtual schools across the country demonstrates the desire of students and parents to be given the choice of learning options. It is almost certain that all states will build some type of virtual schooling, as encouraged in the National Educational Technology Plan developed by the U.S. Department of Education. However, despite the steady growth, barriers will continue to challenge online K-12 virtual schools. It is important for virutal schools to develop standards and policies to address these barriers. Each virtual school environment promotes various levels of teacher involvement, student and teacher interaction, and content that make the development of standards and policies challenging.

With the expected growth of virtual schools, the educational model becomes more decentralized and transforms into an educational model in which the school is brought to the student (Center for Digital Education, 2008). Therefore, virtual schools should build on the foundation of teaching and learning through effective instructional methods based on a specific and realistic mission and philosophy. They should continue to develop programs that strive to provide students with broader educational opportunities and increase access to more resources.

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Developing Math and Science Teacher Pedagogical Skills Through Electronic Mentorship

Daniel Prouty

The Problem

The National Commission on Teaching and America's Future (2003) states that "teacher retention has become a national crisis" (p. 21). The attrition rate for teachers with 1 to 3 years experience ranges from 20 to 30% (Darling-Hammond, 1997).

In addition to this problem, many school districts are faced with a shortage of qualified math and science teachers. According to Ingersoll (2007), over half of all teachers leave the classroom within 5 years and the demand for new math and science teachers exceeds the supply. Ingersoll's analysis of the data indicates that the solution to the teacher shortage must include efforts to both recruit and retain teachers. Ingersoll also makes the case that retention can only be made possible by improving the conditions of the job including increased support for teachers.

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Furthermore, educators in states with low population densities and geographic isolation often experience difficulty providing induction and mentoring for secondary teachers (Simonsen, Luebeck, & Bice, 2007). It is not unusual for smaller schools to have a single teacher working in a specific discipline such as life science or algebra. For newer teachers assigned to these positions, it is often difficult to find a peer with whom to collaborate. In a 2001 study, Luft and Cox found that only 20% of beginning mathematics and science teachers in southwestern states had access to an induction program of any kind; none of the programs addressed the unique requirements of teaching mathematics and science (Simonsen et al, 2007). The problem is that while a given school site or district may have an induction support person, the chances that he or she will be teaching

the same subject and grade level are low. And while this individual may provide general support in the areas of classroom management, lesson design, and assessment, he or she is qualified to offer little in the way of advice on how set up a dissection lab or how to scaffold geometric concepts for 10th grade students.

A potential solution to this problem is structured computer-mediated communication (CMC) between new teachers and mentors capable of providing support in specific subject-matter areas and grade levels. In recent years, online learning has been implemented in an ever-expanding array of business and academic applications; mentoring for beginning teachers is one such example (Simonsen et al., 2007).

Distance mentoring or e-mentoring is a relationship established primarily using electronic communication between a "more senior individual" and a "lesser skilled or experienced individual" that is intended to "develop and grow the skills, knowledge, confidence, and cultural understanding of the lesser skilled individual to help him or her succeed, while also assisting in the development of the mentor" (Single & Muller, 1999, p. 3). It is further defined as a "formalized program environment, which provides training and coaching to increase the likelihood of engagement in the e-mentoring process," (Single & Muller, 1999, p. 3). E-Mentoring for Student Success (eMSS) is a program recently developed to support these tenets by providing math and science teachers with formalized and ongoing support in their specific subject-matter areas.

What is eMSS?

eMSS is a national network of math and science educators and professionals focused on supporting new math and science teachers as they enter the profession. The goal is to ensure that all eMSS beginning math and science teachers have the resources and veteran advice to provide quality instruction to their students. In the program, each beginning teacher is assigned a mentor from the same grade and discipline. The program focuses on their work together as they study content and pedagogy facilitated through an online curriculum that directly applies to the teacher's classroom. ("Introducing eMSS," n.d.). Mentors and their assigned mentees work in collaboration with other mentors and mentees and interact with university faculty and program facilitators who are regularly involved in the network ("The New Teacher," n.d.-b). The eMSS network is designed to promote professional development through dialogue and offers content-focused mentoring program inclusive of training, stipends, and program administration. Leadership and professional development opportunities are also made available for participating teachers ("Introducing eMSS," n.d.).

The Program's Inception

The eMSS program was started in 2002, when the National Science Foundation awarded a 5-year grant to the National Science Teachers Association, the New Teacher Center at the University of California at Santa Cruz, and Montana State University's Science/Math Resource Center to develop the eMSS project (Kepp & Mike, 2009). The initial goal was to offer a structured online program to facilitate support and communication for new science teachers. In 2007-2008, the program was expanded to include mathematics teachers through additional funding from Goldman-Sachs who desired to help build a program specifically for math teachers ("Introducing eMSS").

The program began with 12 school districts and rural consortia in Montana and California, ranging in size from 315 to 34,436 students. The partnership designed, piloted, and expanded the induction program to eight states through the first four years of its existence. By year five, educa-

tional organizations in 16 states were participating (Taylor, 2007). To date, over 1,500 mentees have collaborated with over 500 mentors in all 50 states to positively affect instruction for over 250,000 students ("eMSS: e-Mentoring," 2008).

The Need for Math and Science Teachers

Numerous reports have outlined the crisis facing math and science education in the United States. The National Academy of Sciences, in its 2005 report, "Rising Above the Gathering Storm," point out that the state of science education in this country is deteriorating compared to the rest of the world and that this has the potential to imperil the nation's economic future. Increasing student achievement is at the forefront of educational reform, and research has shown that teacher quality has a significant impact on student performance (Kepp & Mike, 2009).

Why Mentoring?

The concept of mentoring beginning teachers is not new. Many districts and educational agencies administer induction programs that provide professional development to beginning teachers (Kepp & Mike, 2009). While the programs may vary in numbers of personnel and the means by which mentors communicate with inductee, all programs are designed to increase teacher retention by providing support to teachers during their first few years of teaching (Kepp & Mike, 2009). A key component of many induction programs is mentoring: matching a beginning teacher with a more experienced teacher for support.

The Alliance for Excellent Education (2004) states that secondary teachers have unique induction needs, and content-specific mentoring is recommended as a way to provide support. Even programs with ample funding and a plethora of resources may be challenged to provide subject-specific mentoring for secondary math and science teachers due in part to the lack of availability of qualified and willing mentors in specific subject areas. Additionally, there is the issue of teachers' equal access to high-quality induction and mentoring. For example, in a 2002 study, Kardos and Johnson found that 61% of teachers in high-income schools were matched with mentors at the same grade level, as compared with only 28% in low-income schools (Kardos & Johnson, in press).

Obviously, districts in rural areas, possessing smaller schools or lying in areas of low income, may have a difficult time pairing new teachers with mentors possessing similar grade level and subject-matter experiences. And this need for support is crucial for these teachers' success in the classroom.

The Need for New Teacher Professional Development

Feiman-Nemser (2001) notes that successful teaching practice requires coherent and sustained teacher development from preservice preparation through the early years of teaching. Teacher induction can help ease the transition from being a student to becoming a teacher; in fact, a well-designed induction program can increase beginning teacher effectiveness during the early years of his or her career (Simonsen, et al., 2007). Also, professional development that focuses on how students learn, pedagogical content knowledge, instructional practice, and disciplinary content knowledge can lead to improved student achievement (Kepp & Mike, 2009). Borko (2004) argues "to foster students' conceptual understanding, teachers must have a rich and flexible knowledge of the subjects they teach" (p. 5).

How Distance Learning Through eMSS Meets Educators' Needs

In 2006, the Southern Regional Education Board (SREB) revised the National Staff Development Council standards for professional development and adapted them for online professional development. The SREB identified six necessary components of online professional development. They include:

1. active learning;
2. disciplinary content knowledge;
3. pedagogical content knowledge;
4. collaboration and reflection;
5. long-term and sustainable; and
6. responsive to teachers' needs.

The eMSS program encompasses all of these components and uses their online environment as a means of connecting experts and materials to new teachers through meaningful dialogue and relevant, classroom-centered learning activities.

eMSS Online Program Tools and Components

The underlying component of the online mentoring program is the technology that supports the interaction. To ensure successful communication between educators potentially separated by vast physical distances, the technology platform must be easy to use, be customized to meet the unique needs of an online professional learning community, and provide a variety of tools. The eMSS program utilizes the New Teacher Center Learning Environment, powered by the Sakai platform. The platform is web-based and is compatible with different operating systems and varying Internet connectivity. The platform includes a log in and password for all users to ensure privacy and security. To support new users, an orientation to the online environment is provided, with access to multimedia tutorials, help documents, and technical support staff for troubleshooting. Dedicated technical support staff are available to respond to the needs of users of all ability levels and to help with requests in a timely manner that is attentive to each user's specific needs (Kepp & Mike, 2009).

Mentees' main connection to eMSS is with their mentor in an area of the platform titled "Our Place." Our Place is a private discussion area for the mentee and mentor. Here, mentees complete much of their work for eMSS, including guided discussions that are called Inquiries. Our Place also serves as a communication vehicle where mentees can securely access help from a peer who is removed from that teacher's district/site level politics and issues. Our Place provides a running "threaded" record of mentees' discussions with their mentors so that either can easily refer back to them if needed (The New Teacher Center, n.d.-c).

The "Mentee Place" and "Mentor Place" are discussion forums for larger groups of mentees and mentors. The Mentee Place allows mentees to share ideas and connect with other beginning teachers across the country. Mentor Place offers ongoing professional development and support for mentors (The New Teacher Center, n.d.-c).

"Inquiries" are online conversational guides designed to help mentees (with the help of mentors) to deepen their teaching practice and boost their effectiveness with students. The Inquiries, which form the core of the eMSS program, are online conversations based on classroom practices. Each Inquiry is flexible and adaptable to a mentee's own specific classroom needs. A group of mentees and mentors, guided by a facilitator, work together on an Inquiry over a period of 8 weeks. There are three sessions of Inquiries offered during the year: fall, winter, and spring. Each session offers a choice of topics so mentees can select an area relevant to their teaching. Teachers participating in Inquiries follow a

"plan, practice, and reflect" cycle. This cycle allows mentees to dig deeply into a topic in a manner that can then be applied to other aspects of their teaching (Kepp & Mike, 2009).

Teacher leaders and practicing scientists and mathematicians facilitate the Community forums and resources areas. They are used to pursue content-focused discussions, dilemmas of practice, and to access a wealth of additional resources (The New Teacher Center, n.d.-c).

Throughout the online platform, eMSS offers an array of resources that are selected by program staff, members of the National Science Teachers Association, and the content specialists in the program. The comprehensive resource area is further organized into categories for ease of use. Program participants also have opportunities to share personal resources. To ensure the quality of these materials, content specialists and facilitators regularly view the personal resources that are posted (Kepp & Mike, 2009).

The eMSS online platform offers multiple venues for collaboration for the beginning teacher: with a mentor, with a small, self-selected group discussing a dilemma of practice, with content-focused small groups, and with content specialists (Kepp & Mike, 2009). With this arsenal of resources at his or her disposal, the mentee can be assured of finding help, regardless of the issue.

The Participant Selection Process

Organizations and agencies such as school districts, departments of education, and other educational organizations begin by applying into the program. Once accepted, they may recruit and select beginning teachers who must then complete an application ("eMSS: e-Mentoring," 2008).

First through third year middle or high school educators teaching math and/or science may apply into the program to become mentees. Applications are available in May for the next program year and potential mentees are notified in late June of their acceptance into the program. Selected mentees must complete an initial online orientation and participate on a weekly basis in the eMSS online site as they work with their mentor on the curriculum in the eMSS environment (The New Teacher Center, n.d.-a).

There is also a rigorous mentor selection process to ensure that these support providers possess the necessary skills and attributes. Potential eMSS mentors must be experienced math or science teachers with a minimum of 5 years teaching experience (the average eMSS mentor has 12 years of teaching experience). Mentor selection is a multiphase process beginning with an application. In order for a mentor to be accepted into the eMSS program, he or she must first sign a letter of agreement with the New Teacher Center and successfully complete a 3-week, online summer institute. While participating in the institute, potential mentors are engaged in intensive professional development with the goals of building trusting relationships, maximizing their ability to interface with the online platform, and understanding the role of a mentor and the online learning environment (Kepp & Mike, 2009). Furthermore, mentors participate in ongoing professional development throughout the year to ensure the beginning teachers are supported effectively (Kepp & Mike, 2009). Mentors must provide quality online dialogue and work with three to five mentees to guide them through all aspects of the eMSS environment. They must also participate frequently in the eMSS online site; posting a minimum of two to three times per week and must participate in at least two Inquiries during the school year ("eMSS: e-Mentoring," 2008).

Program Benefits

The benefits for the mentee come in the form of expert support from an individual mentor with experience in the same math or science discipline or grade level, access to a nationwide network of math and science teachers, and access to content-focused online support for the classroom, as well as a guided curriculum that engages mentees in planning, applying practice to their classroom, and reflection with their mentor and a group of teachers working on similar goals. Mentees who meet all program requirements receive verification of professional development participation and have the option to receive college-level academic credit to help increase their standing on many districts' salary schedules ("eMSS: e-Mentoring," 2008).

eMSS mentors also receive a number of benefits as participants in the program. They may earn stipends ranging from $1400 to $3,000 per year, depending upon the number of mentees for which they are responsible (the maximum number allowed is five). They also have immediate access to a nationwide network of other mentor teachers, university faculty, and have the opportunity to increase their skills through online mentor professional development ("eMSS: e-Mentoring," 2008).

Data on the Program's Success

To ensure the program is optimized to meet participants' needs, eMSS program staff administer pre- and postsurveys to the entire participant pool, which can be disaggregated by program. In addition, data regarding the amount of activity and postings are also available for each program (Kepp & White, 2009). Evaluation of the program has shown that beginning teachers participating in eMSS have reported a significant increase in preparedness in basic teaching and management skills, and the eMSS components have enhanced their ability to teach science, and participation in the content areas improved their understanding of the content (eMSS conference proceedings). A study conducted by Taylor (2007) on the eMSS program indicates that facilitators of the eMSS online conferencing systems can promote improved dialogue, with the potential for increasing participants' learning related to the program goals. The results of a 2005-2006 study suggest that this type of private, paired discussion environment appears to successfully support trust building and relationship growth, as mentor-mentee pairs exchange many messages about home, family, and non-teaching-related issues. The results of this study further suggest that private, paired discussion facilitates a strong bond that links mentees, their mentors, and the classrooms in which they teach (Simonsen, Luebeck, & Bice, 2007).

eMSS Program Success

The eMSS program provides an exhaustive list of services for its members. Through the online platform, participants have access to a collaborative learning environment program with professional facilitation as well as an informational website that provides extensive content-area and pedagogical resources. High-quality, fully trained online mentors provide ongoing support to ensure that beginning math and science teachers enjoy success in the classroom. Program monitoring and ongoing evaluation ensure that the components of the program continue to meet goals and expectations.

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"THE RESULTS OF THIS STUDY FURTHER SUGGEST THAT PRIVATE, PAIRED DISCUSSION FACILITATES A STRONG BOND THAT LINKS MENTEES, THEIR MENTORS, AND THE CLASSROOMS IN WHICH THEY TEACH."

Education a la Carte

The New Jersey Virtual Community College Consortium

Paula A. Williams

Introduction

In this era of great social changes and uncertainty about the future, community college leaders are charged with broad responsibilities, high expectations, and limitless challenges (Pierce & Pedersen, 1997). At the core of most issues with which leaders in community colleges grapple are budgetary concerns. All but the wealthy institutions face major challenges in addressing how best to meet the ever-changing needs of their clientele with the shrinking budgets with which they must work. The primary purpose for creating virtual colleges was to increase access for students faced with challenges in attending traditional classes, allowing them to find online courses and programs at various institutions across systems and states, all in one place, which would pave the way for collaborative degree programs (Epper & Garn, 2004). As Israel and Kihl (2005) maintained, colleges can save a significant amount of funds without adversely affecting the quality of services or instruction offered.

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Academic consortia have been formed for a variety of reasons over the past 50 years or so. Baus and Ramsbottom (1999) stated that the broad "mission of any consortium is to enable the members to achieve together, through cooperation, what cannot be achieved alone (p. 4). The rapidly increasing costs of higher education and the drive to utilize technologies in addressing student needs prompted leaders to seek solutions that would reduce or eliminate inefficiencies and the need for institutions of higher education to compete unnecessarily. Epper and Garn (2003) viewed distance education as a means to expand access to education and to increase economic development by utilizing partnerships in the form of consortia. Therefore, colleges formed agreements, recognizing that they could not operate independently to effectively address common issues in response to the needs of their students and economic pressures (Baus & Ramsbottom). Generally, colleges entered into such partnerships motivated

by the common factor of enhancing their academic offerings and services.

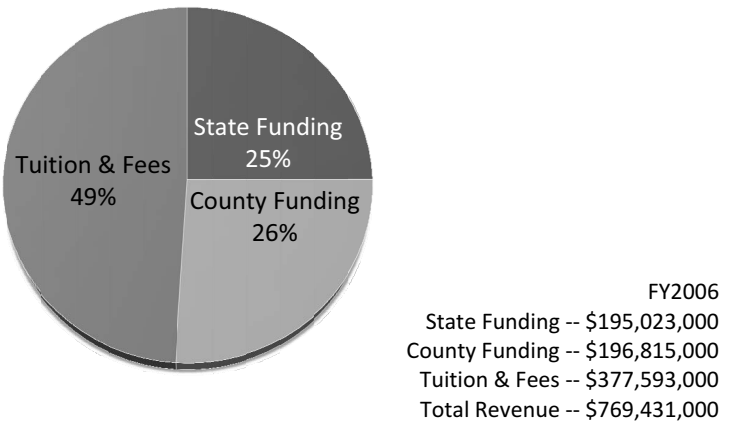
The Development of NJVCCC

A new paradigm of organizational behavior was introduced in the 1990s, characterized by cooperation, collaboration, and teamwork (Baus & Ramsbottom, 1999). Almost every state in the United States had developed some form of a virtual college or university by 2000, and many were seeking various means to expand access to education while operating in a cost-effective manner by utilizing cooperative ventures among institutions (Epper & Garn, 2003).

Distance learning was by no means a new practice in New Jersey, as many of the community colleges had been offering telecourses for over 20 years (Chulvick, 2000). Prior to the development of the Virtual Community College Consortium (NJVCCC), there was a tremendous difference in terms of the colleges' resources and expertise. The former vice-president and president of NJVCCC (M. Kassop, personal communication, March 30, 2009), has explained that several of them were already offering various online courses and programs, and some of these colleges were larger, wealthier, and more technology-oriented, and therefore were likely to be the trendsetters in the state.

The community colleges in New Jersey are county based, with 19 colleges serving the 21 counties in the state. These colleges collectively are the largest provider of New Jersey's public higher education (Farbman, n.d.). They receive their primary funding through student tuition and state and county funding, as shown in Figure 1.

Several factors influenced the development of NJVCCC. In 1999, three New Jersey community colleges—Atlantic-Cape, Camden and Gloucester—formed the South Jersey Collegiate Consortium with Rutgers University and developed a grant-funded program to increase the number of their graduates transferring to Rutgers (Landsberger, 2004). Of major concern were the relatively low graduation rates of community colleges, and the southern areas of New Jersey, which were economically depressed and prone to layoffs. Named Direct Path, the program aimed to increase the graduation and transfer rates of students in obtaining both associate of



Source: New Jersey Council of County Colleges (2008)

Figure 1. Major sources of revenue for community colleges in New Jersey, fiscal year 2006.

arts and bachelo of arts degrees, as well as to utilize student interaction and a strong community infrastructure to decrease the isolation in the online, Internet-based courses (Landsberger, 2004).

Another development that supported the expansion and offering of online courses was the Virtual Academic Library Environment (VALE) Consortium, formed in 1998 to assist institutions in providing access to scholarly materials to their students and faculty (VALE, 2009). Comprising all academic libraries in higher education, VALE collaborated and leveraged purchasing to provide and share resources throughout the state.

In January 1999, governor Christine Todd Whitman announced the establishment of the New Jersey Virtual University (NJVU), a state-funded initiative aimed at expanding access and providing more opportunities and flexibility to meet workforce and education needs. NJVU provided a centralized listing of more than 800 distance education courses available at the colleges and universities in the state (New Jersey Commission on Higher Education, 1999).

As Baus and Ramsbottom (1999) commented, a critical factor in developing a consortium and sustaining it is institutional support at the executive level. The New Jersey Council of Community Colleges, which comprised all 19 community college presidents, met with representatives from Texas and Oregon and learned how virtual community colleges worked in those states (Wall & Hiros, 2000). With the creation of NJVU, the presidents resolved to develop a companion initiative to provide their colleges' clientele with expanded access to course offerings (Farbman, n.d.). The primary purpose of NJVCCC was to increase access to community college education, regardless of time or geographic constraints for all New Jersey residents (Harbach, 2000). According to Kassop (as cited in Santovec, 2003), the presidents envisioned an organization that would eliminate costly duplication of course offerings among their colleges by having students take certain courses from only one institution. For example, instead of having 19 colleges develop and offer 19 introduction to sociology or general psychology courses, a few would develop these courses and the other colleges would allow their students to take those courses, a la carte. An added benefit was that they would not have to train individuals to create the courses. However, the consortium did not necessarily work out that way.

With the support of the 19 community college presidents, a volunteer team was formed with a representative from each college, and given the charge to develop a consortium (Wall & Hiros, 2000). During its early meetings the team discussed, at length, questions regarding whether they were ready for this cooperative venture, and whether the colleges were really ready to offer courses (M. Kassop, personal communication, March 30, 2009). They concluded that they probably would never be completely ready and determined to forge ahead. During the 1999 fall semester, nine of the colleges participated in a pilot program, offering over 50 online courses to 43 students throughout the state (Farbman, n.d.). The pilot team included Atlantic, Bergen, Brookdale, Burlington, Camden, Mercer, Raritan Valley, Sussex, and Warren community colleges.

The New Jersey Virtual Community College Consortium was founded a year later in spring 2000. The governance structure comprised one representative from each college (Wall & Hiros, 2000). The consortium negotiated a contract with WebCT in 2000 to provide the course management system (CMS) through which the courses would be offered ("WebCT Announces," 2000). During its first semester, more than 200 students had registered for courses through the consortium (Chulvick, 2000). It is interesting to note that although all 19 colleges agreed to pay for WebCT, it was not used by all (M. Kassop, personal com-

munication, March 30, 2009). In its efforts to maximize use and share resources, New Jersey's community colleges now had the opportunity to offer courses that were taught at other county colleges, while retaining their students. The availability of a wide range of courses accessed online offered students a significant increase in their options to further their education in a manner designed to suit their needs (Chulvick). Although primarily intended for students with disabilities, multiple responsibilities, and time constraints due to work, many traditional students opted to take these courses, which offered them more flexible options (Harbach, 2000). As Kassop commented, this type of cooperation among 19 fiercely independent colleges was unprecedented.

NJVCCC Operations

One of the major benefits of a consortium is the advantage of increased accessibility while sharing the associated risks and costs (Peterson, 2007). Prior to 2002, many of the smaller community colleges were hampered by the high costs of accessing high-speed Internet connections and could not afford them, thus limiting their ability to offer distance education (Arnone, 2002). In addition, the NJVCCC was operating on the commercial Internet, Arnone noted. The first New Jersey statewide high speed Internet network, NJEDge.Net was established in 2002 to provide high quality video and data transmission among the 37 2- and 4-year colleges and universities, using a backbone that was accessible only to these colleges (Arnone, 2002). This provided the infrastructure that the smaller and economically-challenged institutions needed. The NJEDge.net project was funded by the institutions, with matching grants from New Jersey's Higher Education Technology Infrastructure Fund for a total cost of $100 million.

NJVCCC operated under a provider-host model. Some colleges provided a selection of their online courses, while others served as hosts, offering these courses to their students in the same way they offered their own (Takacs, 2004). Some institutions served as both provider and host. This model eliminated the need for students to register at the provider school also. Students were admitted to courses if they met the prerequisites that were already established. Course enrollment was limited to approximately 20 students, with a minimum of 10 students required for the course to run (Farbman, n.d.). It should be noted that the consortium did not and still does not grant degrees.

According to Kassop (personal communication, March 30, 2009), some of the colleges became leaders in online education in the state, assuming the status as provider schools. They provided courses to the consortium but very few of their own students took courses elsewhere, since they already offered those courses. Bergen Community College was one of the leaders, offering approximately 100 online courses to several hundred students in the initial stages. Other leading colleges included Atlantic-Cape Community College, Raritan Valley Community College, and Ocean County College. Mary Wall, NJVCCC's first president, came from Atlantic-Cape. Other county colleges such as Gloucester, Salem, and Cumberland did not have many courses of their own, and became host institutions during the initial stages. It is interesting to note that although all 19 colleges agreed to form the consortium, some did not have any online programs. However, they willingly joined the consortium based on the agreement between all their presidents (M. Kassop, personal communication, March 30, 2009). For example, Essex County College still does not have an online program. The same, to a lesser degree, was true of Hudson Community College, which still does not have much of an online program. Warren Community College has a very small, online program.

Member colleges provided oversight and responsibility for the courses and programs offered, with clearly defined roles for the provider and host institutions, as well as best practice guidelines for distance learning faculty (Epper & Garn, 2003). Although the course was taught by the provider institution, support services such as proctored testing, library services, and issuing grades and academic credits were provided by the host institution (Chulvick, 2000). The need to transfer grades or courses was eliminated, as completed course and assigned grades were honored by each institution (M. Kassop, personal communication, March 30, 2009). For example, if a student earned a B+ in a course, the B+ was entered on the student's transcript as though the student had taken the course on his or her own campus. It was not a transfer credit or a pass/fail.

Through NJVCCC, students could take any of the courses that their institution hosted, paying a standard tuition regardless of which institution was hosting the course. Since standardized tuition made the accounting easy, it facilitated filling undersubscribed courses because students could take a course at any of the participating colleges. This was an ideal arrangement for students whose base college's tuition was considerably higher, less attractive to those whose courses cost considerably less.

NJVCCC members also agreed to share the income from online courses. Tuition revenue was allocated to the colleges based on their role in the course delivery. Generally, 65% went to the provider institution the course to cover costs such as instructor salary and CMS (M. Kassop, personal communication, March 30, 2009). The remaining 35% went to the host institution to cover costs such as registration, tutoring, and proctor testing. It should be noted that the percentages allocated have varied over the years (M. Kassop, personal communication, March 30, 2009).

NJVCCC's Impact

The presidents' main goal was to eliminate the duplication of courses among the 19 community colleges. However, this did not occur. Instead, the consortium served as a bridge for colleges that lacked the necessary technology to offer online courses, allowing most of them to begin creating their own courses (M. Kassop, personal communication, March 30, 2009). Those who had not created their programs or developed their courses yet benefited from the consortium, which provided courses for them until they had developed their own, thus reducing the reliance of colleges such as Gloucester, Salem, Cumberland, and others on the resources of the leader institutions. For example, the number of students from other colleges taking courses at Bergen initially exceeded 400 but gradually diminished to only about 40 or 50 students (M. Kassop, personal communication, March 30, 2009).

The consortium offered several advantages to its member institutions. It facilitated the sharing of various distance learning resources such as courses, programs, faculty, administrative support, student services, and the telecommunications infrastructure, which was critical in allowing many of the institutions to offer education via distance. The expanded selection of courses allowed students to pursue additional options and enroll in courses that were previously unavailable at their institution. A course that was not available at a specific college but was offered by another college in the consortium was hosted at the college lacking the course. By placing the course on the college's website and including it in their schedule, students were able to enroll in the course seamlessly.

In its efforts to provide expanded online academic support to students, the consortium incorporated the SMARTHINKING service as a vital component in its offerings in 2001 (SMARTHINKING Forges, 2001). SMARTHINKING provided study

resources and academic support in core courses 24 hours a day, 7 days a week in synchronous, asynchronous, and pre-scheduled Web-based tutoring sessions (SMARTHINKING, 2009). Its use was not uniform across all the colleges in the consortium. Some of the colleges limited access to consortium students only, while others offered it to all their students (SMARTHINKING, 2009).

There were some challenges and issues with which the NJVCCC grappled over the years. The institutions faced challenges in integrating and automating their registration, as seven different student management systems were used (Santovec, 2003). Other challenges included variations in course names, course codes, degrees offered, size, scope, resources, and requirements.

All of the colleges used WebCT initially, with one exception. Camden was an anomaly in a variety of ways (M. Kassop, personal communication, March 30, 2009). Although Camden was a full and active member of the consortium, paid for WebCT, and had a number of online courses, it was the only college that did not use WebCT. Kassop further explained that as the contract with WebCT neared expiration and new versions of the courseware became available, there was a lot of concern regarding a potential lack of uniformity in the CMS, and possible higher costs for each college. Purchasing as a group offered the advantage of lower costs versus individual college negotiations. Therefore, a very complicated but attractive package was created that was cost-effective for all, and was based on a college's need for a CMS. This allowed small colleges to pay very little for the course management system while larger colleges such as Bergen and Atlantic paid considerably more.

Future Direction

Past practices indicate that the development and survival of consortia are not easily accomplished, due to the strict institutional autonomy emphasized by higher education's culture and traditions (Baus & Ramsbottom, 1999). Colleges have focused on their distinguishing characteristics and needs, and generally rewarded faculty for independent endeavors, Baus and Ramsbottom further stated. NJVCCC was successful in serving as a bridge between lack of technology and online courses to appropriate technology and well-developed online programs at the various colleges. In the state of New Jersey, which had a history of very little cooperation among community colleges on any kind of issue, the consortium's success is evident in the number of agreements developed and supported by all its member institutions. The presidents of the colleges were driving forces in establishing the consortium. All its members contributed to the purchase of a common CMS, whether or not they used it. In addition, there was common agreement in sharing courses, sharing income from courses, and accepting grades assigned.

NJVCCC has achieved its broader goal of expanding access to community college education, regardless of time or geographic constraints, for all New Jersey residents. From its small beginnings in 1999 with only 50 online courses, its offerings increased to over 800 different courses by 2007 (Miller, 2007). In 2003, only three of the community colleges—Atlantic-Cape, Burlington, and Mercer—offered online degrees ("Community College Offers", 2003). With the expansion of courses and programs over the years, the number of colleges offering online degrees has increased also. Atlantic, Brookdale, Burlington, Mercer, Morris, Passaic, Raritan Valley, and Union county colleges all offer degrees entirely online (NJVCCC, 2009).

The college presidents had envisioned an organization that would eliminate costly duplication of course offerings by having students take certain courses from only one institution. That vision was not

accomplished for the most part. Currently, there appears to be less of a need for NJVCCC in a number of areas. Group purchasing is virtually nonexistent, as each institution makes it own decisions, based on its needs. There is a marked lack of consistency among member institutions in their use of course management systems. Some retained WebCT, while others are now using Angel, Blackboard, and so on. In addition, the consortium is not serving as a clearinghouse as it once did in enabling the sharing of courses. Instead, they are encouraged to develop partnerships and arrangements with other colleges throughout the state (M. Kassop, personal communication, March 30, 2009). One of the many examples is the New Jersey Consortium for Veterinary Technology Education, allowing students to earn an associate in applied science degree in veterinary technology, offered by Bergen, Morris, and Sussex community colleges ("Bergen County Partners," 2007). Students receive practical work experience and benefit from the additional resources and knowledge by working with a veterinarian in county animal shelters through collaborations with the County Executive's offices.

As Peterson (2007) observed, the role of consortia as instruments of change is significant but often overlooked. The ability to motivate and engender agreement between fiercely independent institutions in trying new approaches and programs is no easy feat and must be viewed as a significant accomplishment. However, sustaining a consortium is a serious and complex undertaking, and the enthusiasm and expectations accompanying it, as well as the organizational forms embodying it frequently do not endure over time (Baus & Ramsbottom, 1999). NJVCCC has served its purpose. Although there have been discussions regarding the training and sharing of online professors, it has not happened yet. The consortium no longer plays a central role in cooperative agreements and does not appear that it will be very vibrant in the future (M. Kassop, personal communication, March 30, 2009). If the consortium is to survive, its role must undergo a transformation. A successful transformation will depend on the development of a strategic plan for a new direction that addresses the changing needs of community colleges in New Jersey.

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America's Army

Distance Education Through Gaming

Janet M. Willisson

Introduction

Online gaming is an activity that many of all ages engage in to the point of obsession. Many online enthusiasts can tell everything there is about their particular games including terrain, controls, personalities, how to score points, and the methodology behind the games. Young and old alike can be quite passionate about their gaming experiences. If asked questions about their games, the answer is usually a 30-minute discussion. Do they learn anything through this gaming experience? Surprisingly, the answer is most definitely yes. Online gamers learn strategy about their games and tactics to use in this strategy. They are quite serious about their gaming worlds and spend hours upon hours engaged in creating, developing, corresponding, and battling in this virtual environment.

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Distance Education Through Gaming

Von Wangenheim and Shull (2009) define a game as "any contest (play) among adversaries (players) operating under constraints (rules) for an objective (winning, victory, or pay-off)" (p. 92). Game-based learning is considered a powerful instructional method. Serious games are those designed to teach certain subject matter, reinforce development, expand concepts, or used as a tool for drill or change attitudes as they play. Those games that ranked most important were the ones that allowed competence building from learning through failure, discovery learning, and situated learning. Games should be designed on the basis of learning theory, instructional design models, and game theory (Von Wangenheim & Shull, 2009).

The simple technology of computer vision is the mechanism video gaming industries are utilizing for virtual reality (VR) and three dimensional (3D) interaction (LaViola, 2008). The Horizon Report of 2008 "identifies game play as one of the seven metatrends that continue to affect pedagogy, evolving to include virtual worlds, augmented reality, and massive multiplayer modes" (Hlodan, 2008, p. 791). Gamers are able to construct, investigate, and interrogate virtual worlds through

digital technologies. This enables them to simulate how they work and play. Squire (2006) notes that "Videogame players can lead civilizations, fly aircraft, lead squadrons of urban warriors in foreign countries, or participate in virtual societies with their own languages, cultures, and economies" (p. 19).

Squire (2006) notes that interaction in the social world is where gamers participate in problem solving. They participate in online social organizations such as learning communities. Hands-on or doing is a core characteristic of game organization. According to Squire, "legendary game designer Shigeru Miyamoto claims to design games around the verbs that gamers enact. The verbs are running, jumping, diving, punching, kicking, and swinging" (p. 22). All of these verbs can be used in some way to get through enemies and obstacles. Games have a "recursive cycle of perceiving and acting and thinking and doing" with the system (p. 22). Gamers adopt a particular avatar within the virtual world and learn the facts and procedures to "be" in that world as the character or avatar. Most gamers are so involved in the virtual online gaming world they are talking, sharing strategies, checking FAQs and participating in forums offered by the online gaming sites. Squire notes that "the most intense social learning is found in massively multiplayer games, games where players interact with thousands of other players in real time over the Internet" (p. 23).

America's Army Website

One such game is America's Army. It was originally created as a recruiting tool for the Army, but has since turned into one of the most popular free online gaming environments existing today. Surprisingly, there are many avenues of training in the America's Army game experience. A few of the training experiences are basic training, medic training, basic combat training, grenade training, and sniper training and testing.

The adventure starts here. The America's Army website consists of many links for information, support, and communities. The "Download" tab is the place to find the latest download of the game and available utilities. "Steam" is a link to a website that is very similar to iTunes. It is a community allowing gamers to download games and view demos and trailers of upcoming events. America's Army has a presence in Steam so gamers play wherever they are from any personal computer. "Deploy" is the link where the latest version of America's Army is found. It is available in multiple languages making it a diversified training experience. "Utilities" is a link where some of the latest utilities are found.

The "Community" tab is the place to find forums, chats, competition, and sites. "Forums" is the place to find all things about the game. Active members include the development team, subject matter experts, armed forces personnel, and civilians of all ages internationally. Documentation is found here and includes guides, how-to's, and FAQ support issues. "Chat" is an area that encourages getting connected. Gamers get connected by the desktop portal and the Internet Relay Chat (IRC) client. "Competition" is the place to find lists of online competition teams and sites. Virtual battlegrounds and competitive teams have links to join and information about when events will happen. "Sites" is the place where the "Fan," "Clan," and "Tournament" sites are combined for easy access.

The "Real Heroes" tab is where the stories of real heroes are told. Their dedication and gallantry in action are highlighted in this section. It includes all ranks and tells stories of soldiers that endure military life every day. This area also includes blogs where these real heroes can post the many activities they are involved in and let others know where to meet them. They tell of

their experiences, how they responded to their experiences, and how they survived. The many roles of the servicemen and women, such as medics, are noted here. Stories also include acts that resulted in medals of honor. The "Support" tab is the place to find support for all aspects of America's Army. Live game support is also available through this section. The "U.S. Army" tab is a place of recruitment information. This area references the Army doctrine and gives examples of careers available in the Army.

America's Army also has a graphic novel that is similar in appearance to a comic book. The name of the novel is *America's Army: The Graphic Novel*. Sherman, Penick, and Brown (2009) have illustrated and written this graphic novel for the gamers of America's Army. The story starts in the Republic of the Ostregals where the American soldier will fight to provide humanitarian relief and protection to civilians. The novel illustrates the many roles an American soldier must have in order to protect and defend a people. They must know teamwork to be able to work together on strategies. There are graphics depicting counseling sessions of questioning with the civilians. The graphics also include the role of medic who attends to civilians' physical needs. Finally, there are graphics illustrating soldiers in full gear out on a mission with all the sounds one would expect to hear on a mission.

America's Army Experience

America's Army game is all about the values the United States Army holds dear. These values include teamwork, strategy, tactics, honor, official weapons, precision, and rules of engagement. Honor is one of the most important values taught by the Army. It includes values of loyalty, duty, selfless service, and respect. These values are taught from day one and are important all through the Army experience and even into life. Honor is a value highlighted in America's Army to engage gamers in the concept of ranks, so they realize getting the job done is more about the whole team than it is about individuals. The Army teaches teamwork from day one also. It is important to be a team member, which means more than merely doing one's own job. It is taking up the slack and making sure that others on the team have fulfilled their duties as well. Teamwork is about helping your fellow man and woman in combat as well as in the barracks. Honor and teamwork are celebrated in the America's Army gaming experience. The developers wanted others to really have a sense for what it is like for soldiers to depend on each other.

Strategy and tactics are an important part of the Army experience. These are mission critical. Without a well planned strategy, the team will not perform at their best, there will be missed opportunities and lives can be lost. Well planned strategies lead to being at the right place at the right time and deceiving the enemy, so victory in won. Tactics can include anything from securing a room or building to securing a region. They require organization of the soldiers and weapons to be used. America's Army developers want the gamer to make decisions while playing this game. What happens if a soldier throws a grenade the wrong way? What if the soldier is trying to throw a grenade through a door and it hits the wall and ricochets back at the soldier?

America's Army has developed and deployed some features that discourage bad rules of engagement. Shooting a friendly is not a value that is accepted in the U.S. Army and America's Army holds to this same value. Weapons training is a highlight for many soldiers, and the same is true for gamers. America's Army's developers have taken real weapons and transferred the detail into the graphics of the game. Any weapon the Army uses that has been developed and deployed in the America's Army game is accurate even

down to the sound effects it makes. The many rifles, machine guns, and grenades are present in the game along with training to use these weapons. Subject matter experts were consulted for the detail of the weaponry, their functionality, and their sounds. The sound effects include magazines being inserted and removed, and explosions. No soldier wants to make the mistake of shooting a friendly or an innocent bystander, so precision is key. America's Army offers lots of training for precision.

The medic training in America's Army is much more detailed than in any other game. The developers wanted to approach the medic training with more reality and show what soldiers really do experience. America's Army developers have access to soldiers who have recommended ways of making the medic training and other aspects of America's Army more realistic. The goal was to show the gamer what a soldier must endure when dealing with a wounded comrade or civilian. Some cases need more attention than others and it is important for the sake of reality that the medic scenarios are accurate.

The developers of America's Army experienced basic training up close and personal. What started out as the assumption that they were going to be spectators and watch others as they went through basic training turned into the reality of participation. The America's Army team spent a week at basic training and learned what basic training is all about. They learned how to move, interact and respond as a group. Rising in the morning for calisthenics, going out to the field to fire real weapons and doing the obstacle course were real experiences the group walked away with at basic training. As is true to the distance education experience, the group took these experiences and applied them to the game so others could have the educational experience they had.

Summary

America's Army's medic training was responsible for helping a man save two others' lives. A North Carolina man witnessed an accident in which an SUV flipped and rolled. He pulled the two passengers from the smoking vehicle to safety. He was able to use a towel to dress the wound of a passenger who had lost fingers and was bleeding heavily. He also knew enough to get the man's hand above his head so the blood flow would lessen. He learned this technique from playing the section on medic training. Distance education through gaming is not only possible, it is happening (Cavalli, 2008).

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Web 2.0 and Distance Education

Tools and Techniques

Michelle Rogers-Estable

Introduction

Web 2.0 is now a commonly heard buzzword in the world of instructional technology. While this word is often used, it is rarely defined. Unlike the impression it extends, there is no new version of the Internet or the Wide World Web. Instead this term refers to the new way in which these items are used. Prior to the dot-com crash the web was a place where experts and webmasters posted information, and users read it; the read-web (RW). After the dot-com crash, the use of the web began to change dramatically and to become more user-friendly, with interactive applications, tools, software, and sites popping up everywhere. Now it is the users who contribute, control, rate and utilize the content on the web; very different from 8 or 10 years ago and many now call it the read/write-web (RWW). This new interactivity and perspective on web use is popularly coin phrased as Web version 2.0 (Bell, 2009; Richardson, 2009; Simonson, Smaldino, Albright, & Zvacek, 2009; Smaldino, Lowther, & Russell, 2008; Solomon & Schrum, 2007).

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Rogers (2003) defines the main factors of adoption of new innovations as: relative advantage, compatibility, complexity (simplicity), trialability, and observability. For a new innovation to be adopted both widely and quickly, it must positively correlate with these attributes. That is to say that adopters must: (1) see a good relative advantage to using it, (2) feel the innovation is compatible with their views, culture, needs, and lives, (3) the innovation must be simple in its use, thus easy to learn, (4) the innovation must be available for testing prior to full adoption, and (5) one must be able to observe the innovation, or talk to others who are using it, before they have to adopt it (Rogers, 2003). Web 2.0 applications offer all of these factors in overflow, and none of them in limitation. For this reason Web 2.0 applications have quickly become popular with users all over the world.

The interactive and socially generated Web 2.0 tools are supported by social movements that open up copyright and proprietary policies, and they include (but are not necessarily limited to), (1) RSS feeds, (2) weblogs (blogs), (3) microblogging, (4) wikis, (5) social graphics sites, (6) social connection sites, and (7) podcasting or videocasting (video production). There are also virtual worlds, but that will not be covered here. A quick review of the former listed tools and some of their uses in education are outlined in this article. A final discussion about the implications and responsibilities of these tools will conclude the article.

Web 2.0 Tools and Techniques

OSI and CC

Several recent social movements have contributed to the success of the Web 2.0. One is the new Open Source Initiative (OSI) (2009), which proposes that software code and applications should be open source and free to anyone to copy, edit, and improve. Today there are many new open source freeware projects run by communities of people that corroboratively create code and programs online where anybody may download and use them. Another movement important to the success of the Web 2.0 is the Creative Commons (CC) (2009) project. CC items are published under relaxed copyrights and often allow use as long as credit is given to the creator. CC media can include music, video, and photography and can form an important part of student projects.

RSS Feeds

RSS feeds are a powerful way to collect specific articles and Internet content into one location. RSS stands for Real Simple Syndication, and it allows people to collect information from the web without having to continually go to those websites (Bell, 2009; Richardson, 2009). It is a very powerful tool for both teachers and students.

Teachers can collect the RSS feeds for websites that publish content on the topic they teach, and then offer those to the students who can use them. If the instructor has a blog or class website they can post those feeds and their updates on a page at their site. There are many different kinds of RSS feeds, including not only podcast feeds, but feeds that search for specific terms, or tags, in articles online. There is absolutely no easier way to stay on top of current events and news in a given area than through RSS feeds (Bell, 2009; Richardson, 2009).

Blogging

A web log, or blog, is the new express-yourself innovation. They are interactive in that readers can comment on and share the posts with others, or sign up for the blog's RSS feed so that readers get regular updates automatically (Bell, 2009; Richardson, 2009; Solomon & Schrum, 2007; Simonson et al., 2009). A blog can be easily created through sites such as Blogger, Typepad, and Wordpress. One can also download the open source freeware Wordpress and install it on their personal server to host their own blog.

There are many uses of blogs in classrooms for deepening learning. It can be used by the teacher as a class portal to publish information, links, updates, events, and articles. Any course with a writing component can utilize a blog very effectively for student essays or as course journals. Blogs can be used as a space for students to turn in their work, to reflect on their learning, to write about a class trip with photos, or to share their own updates on the topics being studied. Blogs can also be an easily created e-portfolio of student work, or a collaborative space for student projects. Students who may be too shy to speak up in class might find more courage in sharing their ideas, thoughts, experi-

ences, and perspectives on a blog, thus attending to different learning styles. Students who know how to create, manage, and maintain a blog are learning an important skill in the new information society. Finally, a teacher in one class may contact a teacher in another state, or another country, and then their students could collaborate and interact together online through the use of blogs, offering multinational or cultural learning potential as well (Bell, 2009; Deng & Yuen, 2009; Richardson, 2009).

Bell (2009) explains how RSS feeds make blogs in the classroom a very effective tool. Students and the teacher can subscribe to each others' RSS feeds and get immediate updates when someone posts new information. Blogs also have tags, or keywords, associated with different posts, making it easier to search for specific information among the millions of blog posts worldwide.

Writers outlining the benefits of blogging in education also mention some of the drawbacks, such as student safety (Bell, 2009; Deng & Yuen, 2009; Richardson, 2009). Students can submit harassing comments to each other, or post inappropriate and even illegal content. It is important that teachers closely monitor the work and sites of students, and discuss with them what a credible source is. Solomon and Schrum (2007) describe sites available just for teachers and classes that want to integrate blogs into their curriculum, and that mandate teacher supervision over all student blogging, such as EduBlogger or ClassBlogMeister.

Microblogging

Twitter is the new rage. Its adaptability to a wide range of uses and one's ability to be truly narcissistic has probably contributed to its quick popularity. It is called microblogging, as only a very short snippet of information, updates, or links are given with each entry. Richardson (2009) says, "While the concept of Twitter seems a bit mundane, the implementation by online educators as a powerful professional development and communications tool is anything but" (p. 86).

Twitter allows regular updating on any given topic, as well as a way to stay in touch with others. There have been concerns over irresponsible use of Twitter as well. If people do not subscribe to credible news agencies, then they will get secondhand information from the uniformed. There was a recent scare created among Twitter users concerning the swine flu, and this episode made it clear that not everyone uses Twitter responsibly (Sutter, 2009).

On the other hand, it is a very fast way to spread important information to students. One can also create groups, called Twibes, in which all the students in a class could share updates on a given topic they are studying. Richardson (2009) outlines how Dale Baer, a physics teacher, has his students send Twitter updates using their mobile phones while on a field trip. This way, students who could not attend the trip are able to "follow" what is going on and what they are learning via the Tweet updates from classmates on the trip. The European Distance and E-learning Network (EDEN) had a special account for the 2009 conference so that those not attending could still follow what was going on. These are just a few of the ways that Twitter can be used in education and information sharing.

Wikis

There is not likely a person in the developed world who has not heard of Wikipedia. Some rave about its social implications for a society that collaboratively contributes massive amounts of information collectively and democratically. Others, usually online instructors, will complain about the problems it creates in education when students use it as a source in papers,

or even directly plagiarize from it. There are both benefits and drawbacks to wikis.

"A wiki is an online writing space designed to be created and edited by groups of persons. The term derives from the Hawaiian work *wiki*, which means 'quick'" (Simonson et al., 2009, p. 245). "And the key word here is 'easy,' because, plainly put, a wiki is a website where anyone can edit anything anytime they want" (Richardson, 2009, p. 55).

One of the main criticisms of sites like Wikipedia is that anybody can publish and edit content. For a collaborative business project, this could be just the right tool. For an encyclopedia, this gives the impression that the information there can never be trusted since anyone, experts or not, may edit it. Richardson (2009) argues, though, that Wikipedia is one of the largest peer-reviewed and regulated sources of information available in the world, and that tests of deliberate attempts to insert errors were corrected within two hours. While it is not credible enough for research papers, it is an excellent source of quick information on many topics, and it shows the power of democratic and multinational collaboration on the Internet (Bell, 2009; Richardson, 2009).

Educators and organizations around the world are creating wikis for their classes and projects. A wiki can be a great class or school initiative to which students contribute, year after year. For example, wikis are used by cultures worldwide to host their cultural and natural heritage, which is useful not only to them as a repository of their indigenous traditional knowledge, but also a great source of learning for students from other countries. Wikis are also being used by professionals as a career source. WikiEducator, hosted by the Commonwealth of Learning, is a perfect example of a great OSI Wiki initiative. It is a wiki of educational resources that are contributed by people all over the world, and meant to be an open copyright source for instructors everywhere. In effect, wikis show the power of cross-national democratic social collaboration.

Social Graphics Sites

Photo and video sharing sites such as Flickr, Google Video, YouTube, iStock, or Photobucket, just to name a few, allow for uploading and sharing of photos and videos. There are endless possibilities for use in education.

Students can create multimedia video or photojournalistic projects on a course subject and then add them to these sites. Then people from all over the world can comment and give feedback on them (Richardson, 2009). Or, students can research topics they are studying at YouTube and Google video, looking up multinational perspectives. Finally, students can download royalty free and inexpensive stock photography for projects from sites like iStock. Furthermore, Flickr has a very large CC area where people allow their images to be used under relaxed copyright policies.

It is easy to search for photos and video on a given topic at all these sites, as there are tags (keywords) associated with each user entry. CC and royalty-free media are a very valuable resource for students doing blogs and other classroom projects. One must not forget audio sharing too, such as Jamendo, where students can get open source copyright free music and audio for their video projects. Students can also contribute to this endeavor by adding their own media in order create more open and free content on the web. Together, all of these media types offer a wide-range of powerful learning options for teachers.

Social Connection Sites

Social networking sites, such as Facebook, Myspace, and LinkedIN attract millions of users due to the easy way in which people can connect, share information, and create groups. While not as powerful to the classroom as some of the previously

mentioned tools, these social connection sites still offer many advantages to education. Websites such as Myspace and Facebook can also be used as classroom blogs on the learning topics, or as journalistic photography showcases for students and teachers. For example, a class may create their own page at Facebook, and then photo galleries and blog entries about a field trip or class project. They can create a group and connect with class websites on the same or similar topics in other schools both nationally and internationally, and then comment on each other's work.

There are other integrated uses as well. Subapplications within these social sites let one add their Flickr photos or list their Twitter updates. Professional connection sites such as LinkedIn also allow for group formation, which can be very useful to graduate students seeking integration into professional organizations. For example, through LinkedIn's Association for Educational Communications and Technology (AECT) group, or the Sloan-C group, members receive regular updates and news links on topics relevant to their careers. These are just a few of the uses these social connection sites can offer. Creativity is the only limit.

Social Bookmarking Sites

"With more than 10 billion pages of information on the Web already and millions more being added each year, it's no wonder people are starting to feel overwhelmed by the Internet" (Richardson, 2009, p. 88). When looking for cool, fun, relevant, and credible sites on any given topic, where does one start to look? The answer is social bookmarking sites.

Sites such as del.icio.us, where people can share their Internet bookmarks with others, are increasing in popularity and in educational use. At these bookmarking sites, people enter in a link with an annotation and tags, or keywords, about it. These tags are searchable and used to find links connected to a given topic (Richardson, 2009). This allows for powerful searching when trying to find the best sites on one topic, and these come as recommendations by the users submitting them. It is the power of community resources at one's fingertips.

Podcasting and Videocasting

Podcasts are digital files that can be subscribed to online, and then are downloaded automatically and regularly to one's music player through podcast-enabled RSS feeds and subscriptions (Bell, 2009; Richardson, 2009; Simonson et al., 2009; Solomon & Schrum, 2007). Now that newer music players also have video capabilities, there are a lot of people creating videocasts as well.

Podcasts can be a powerful way to promote school and classroom news, updates, activities, and information. Many teachers use them to create course audio lectures or to have interviews with guest speakers, and students may download and listen to them at home. Students with the equipment and skills may do class projects or work as podcasts that other students can then download. Language courses can utilize the millions of different language podcast shows online in an effort to help students work on listening comprehension, or music teachers can record recitals or snippets of music that students can listen to and mimic in practice at home (Bell, 2009; Richardson, 2009; Simonson et al., 2009; Solomon & Schrum, 2007). Finally, credible news agencies such as NPR create educational and newsworthy podcasts on many topics that teachers can get easy permission to use in the classroom.

Freeware audio editing tools, such as Audacity for PCs, or GarageBand for Macs, are easy to use and allow even novices to begin creating their own podcasts. Podcast shows can be hosted at a teacher's blog or school website, or can be uploaded to

accounts created at sites such as iTunes or Podcast Alley.

A downside to podcasts is the lack of regulation, as in some there can be inappropriate content for some ages. The teacher should check all outside created podcasts or videocasts used in a course before giving them to students (Bell, 2009).

Conclusions: Web 2.0 Benefits and Responsibilities

Web 2.0 offers a vast array of tools and applications that can be used by teachers in both online and face-to-face learning. They can all be integrated and used together, or separately, and through creativity offer new venues for student learning, and new venues that can interact on a national and global scale with others allowing for multicultural perspectives.

One downside to Web 2.0 is that a teacher must learn how to use these tools, and if there are no professional development programs in their school setting, then a busy teacher may not have time. Another downside is that a school and the students must have access to the technology necessary to utilize these tools, either at home or in a school computer lab. There are also safety concerns. Not all information provided through many of these Web 2.0 tools is appropriate for all ages. A teacher must carefully examine all outside videos, podcasts, RSS feeds, and blogs prior to using them in a classroom setting. A teacher must also closely monitor the work submitted by students to classroom projects and Web 2.0 accounts to make sure it does not include any inappropriate content and does not breech any copyright laws. Finally, a teacher must spend time explaining what credible vs. unreliable sources of information are as pertains to reading blogs and other such tools.

All in all, the drawbacks to Web 2.0 use in education are far surpassed by the benefits available. While these tools may not be appropriate in all contexts and learning environments, there are many cases in which they offer exciting new collaborative, connection and multicultural learning tools. In effect, the Internet and its socially constructed tools offer a million ways for students to interact, not only with each other and the teacher, but with students and people from all over the world. The Internet is here to stay, and in the new information society students must learn how to navigate it successfully. Many students are already using Web 2.0 tools, so now the teacher can offer students a responsible and valuable way to use them as well.

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Crafting the "Right" Online Discussion Questions Using the Revised Bloom's Taxonomy as a Framework

Natalie B. Milman

There are many different ways in which an instructor might organize an online discussion depending on the course goals, objectives, and time frame for a discussion. For instance, an online discussion might be instructor-led, student-led, guest-led, or a combination of any of these approaches. The discussion might last a few days, a week, several weeks, months, and so on. However an online discussion is organized, *someone* must locate (e.g., use questions from a text) or develop the questions from scratch for the online discussion whether it is the instructor, students, or a guest facilitator. Yet, selecting or crafting the "right" questions for an online discussion is not an easy task! Of course many might debate what a "right" question is in the first place! The term "right" is used to differentiate it from a "good" question since good questions may not be the "right" ones to meet one's goals and objectives, apply in an online environment, use with one's target audience, and/or address the content.

According to Berge and Muilenburg (2002), "The right questions depend greatly on what the instructional goals and objectives are for the training, development, or education that is to take place. The right

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questions are those that foster learner engagement in the learning process" (p. 184). Yet, how is this accomplished? Berge and Muilenburg recommend using Bloom's Taxonomy for developing questions that incorporate the higher levels of Bloom's taxonomy since these tend to foster higher order thinking. However, Bloom's Taxonomy has since been revised (see Anderson et al., 2001). Although other frameworks exist for developing effective online discussion questions such as the CREST+ model (Akin & Neal, 2007), this article shares a brief description of the original (Bloom, 1956) and revised Bloom's Taxonomy (Anderson et al., 2001) and suggestions as to how one might use this framework for crafting the "right" online discussion questions to foster student engagement and higher order thinking.

What is Bloom's Taxonomy? What is the revised Bloom's Taxonomy?

The original Bloom's Taxonomy (Bloom, 1956) was developed by a group of higher education examiners to "establish a standard vocabulary for indicating what an item [such as a multiple choice question on an exam] was intended to measure" (Anderson et al., 2001, p. xxvii). Bloom's Taxonomy is a classification system of cognition that identifies a continuum of six different levels. The levels, from lowest to highest, are: knowledge, understanding, application, analysis, synthesis, and evaluation. It is most often used for developing cognitive instructional objectives.

The revised Bloom's Taxonomy was developed by a group of cognitive psychologists, curriculum theorists and instructional researchers, and teaching and assessment specialists in response to findings from more current research about our understanding of learning "emphasizing what learners know (knowledge) and how they think (cognitive processes)" (Anderson et al., 2001, p. 38). The revised Bloom's Taxonomy is a two-dimensional framework consisting of the "knowledge dimension" and the "cognitive process dimension."

The knowledge dimension consists of four different types of knowledge: (1) factual, (2) conceptual, (3) procedural, and (4) metacognitive. *Factual knowledge* describes the basic and essential elements a person must know (e.g, key vocabulary). *Conceptual knowledge* refers to knowledge of the relationship between classifications and categories. *Procedural knowledge* is knowledge about how to do something, and *metacognitive knowledge* is knowledge about one's own cognition (Anderson et al., 2001).

The cognitive process dimension includes six process categories: (1) remember, (2) understand, (3) apply, (4) analyze, (5) evaluate, and (6) create. Although more or less self-explanatory, these dimensions also have various verbs associated with them to describe them further (e.g., the verbs associated with "analyze" are "differentiating," "organizing," and "attributing").

Table 1 illustrates this two-dimensional framework. Similar to the original Bloom's Taxonomy, the revised Bloom's Taxonomy also has a continuum of different levels from lowest to highest, as the arrows in the table show.

Crafting Online Discussion Questions Using the Revised Bloom's Taxonomy

To create the "right" online discussion questions using the revised Bloom's Taxonomy first requires thorough comprehension of this framework. After one has a solid understanding, one should create questions that might fall into the different knowledge and cognitive processing dimensions, based on one's and/or a course's goals and objectives. Once questions are developed, then one can use Table 1 to see where the questions fall into

Table 1. The Revised Bloom's Taxonomy Table

Knowledge Dimension	Cognitive Process Dimension: Remember	Understand	Apply	Analyze	Evaluate	Create
Factual						
Conceptual						
Procedural						
Metacognitive						

Source: Anderson et al. (2001, p. 28).

Table 2. Sample Discussion Questions

Knowledge Dimension	Cognitive Process Dimension: Remember	Understand	Apply	Analyze	Evaluate	Create
Factual	#1					
Conceptual		#2				
Procedural						#4
Metacognitive					#3	

the two-dimensional framework. After revision and renewed analyses of where the questions fit, then one should select how many and which of these questions to use for the discussion, since it is unlikely all of the questions developed will be used.

Below are some examples of questions that might be used for a discussion on the principles of graphic design. Table 2 shows in which area of the revised Bloom's Taxonomy the question might be categorized.

1. What are the four principles of graphic design? (Factual, Remember)
2. What are some examples of websites that demonstrate good implementation of the principles of graphic design? (Conceptual, Understand)
3. Evaluate how well you applied the principles of graphic design in your website. Which were integrated well? Which were incorporated poorly? Explain your answers with concrete examples. (Metacognitive, Evaluate)
4. Create a simple website that applies the principles of graphic design. How did you do this? (Procedural, Create)

It is important to plan the "right" questions for online discussions. Advanced planning and attention will most likely result in a lively and engaging discussion. The application of the revised Bloom's Taxonomy for crafting online discussion questions "can serve as a catalyst for increased adult learner understanding and meeting the instructional goals in both workplace training and higher education" (Berge & Muilenburg, 2002, p. 189), as well as fostering engagement and higher order thinking skills.

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The (Almost) Complete Guide to Effectively Managing Threaded Discussions

Errol Craig Sull

They are considered the beating heart of nearly every online course: the threaded discussion, where students post weekly to topics related to the course subject. Here is one of the true benefits to online learning, for students are "locked" into a cyber room where each week they share thoughts, ideas, information, and suggestions with other students. These threaded discussions take students into a richer learning experience, for they further mine the course subject and its readings through conversations with their peers. And their instructor.

It is the instructor upon whom the success or failure of the threaded discussion rides, and to effectively manage a threaded discussion is an art, to be sure. What is offered in this column is a comprehensive listing of suggestions to enhance the online instructor's facilitation of the online threaded discussion. While it is thorough it can never be the last word, for many who teach online have additional approaches, strategies, and suggestions in improving one's efforts at having successful, quality discussions, week after week. I invite you to send these on to me at erroldistancelearning@gmail.com—I will include these in a future column. But for now, I think you'll

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find these most helpful (and always adopt suggestions based on the umbrella of what your school's policies will or will not allow):

- **Be sure your students are fully aware of all discussion expectations.** Posting all threaded discussion expectations—and the importance of threaded discussions—in a separate, first day post to the class is important; it details what you are looking for in the discussions and their value to the students' learning. And at the beginning of each week's new discussions have a posting that gives an overview of expectations for each specific thread for the week. Both of these actions will reduce the number of student e-mails/postings asking for clarification from you and result in clearer and more focused student postings.
- **Give students examples of quality and not-so-good discussion postings.** You can have students who are new to threaded discussions and those who have experienced them with other instructors; in either case, posting samples of good quality and not-so-good quality posts will give students a visual demo of what you expect from them. (Post screen shots of each, but always delete the names.) It's also helpful to post a little blurb for each explaining why one is considered a great discussion thread and why the other is weak.
- **Be the first person to post in each threaded discussion.** When the students see you are first in a discussion thread they know you are involved; you can set the pace and raise additional questions or mini-topics related to the primary topic of the thread; and your enthusiasm to get involved in the discussion will help get more students involved for an engaged thread.
- **Always give a summary posting on the last day of each threaded discussion.** Just as you kicked off the week it's also very helpful to wrap up the week's postings—in each thread—with a summary posting. It can touch on the objectives you had for the week, always some "Nice going, class—good involvement this week!" motivation, and a reminder of the thread's importance to the whole of the class.
- **Be positive and non-judgmental in all responses to student postings.** You don't want to lose any students with negative feedback in postings, whether to an individual student or the entire class. One of the biggest "no-nos" in any teaching is to berate or negatively judge a student in front of others; this is especially harmful in an online class where comments stick around, to be read again and again. First, stay positive—you can always find items on which to compliment a student and the whole class—and this leave all with a positive, "It's-nice-to-be-here-and-involved" feeling. Of course, any corrections for students should be in a private, to-the-student-only e-mail and/or phone call.
- **In proactive and reactive postings make occasional use of your experiences—and their experiences.** A great way to help keep students engaged in discussions and relate discussion topics to the real world is by tying them into some of your own experiences, whether as a professional or otherwise. This makes the information more "real"—and students always are interested in hearing something about their instructor's life. This also works with students and is an especially good strategy for getting the somewhat reticent and not-doing-much-discussion-posting student to get more involved.
- **After each of your postings, end with a specific question or two to the class.** This is a great way to keep the discussion thread going "full guns," especially when the midway point or later in a discussion is reached and students begin to feel a bit burnt out. New questions—relating to the discussion topic or other

student postings—can breathe new life into the discussion thread, while also expanding upon the learning experience, both vertically and horizontally. It also shows your continued interest and involvement in the discussion thread, most important as you are the Big Kahuna in each thread and set the pace.

- **Remain enthusiastic and interested about the postings throughout the thread.** This may seem like a given, but it's easy to lose sight of your diminished enthusiasm and motivation for the discussion thread—and empathy for student experiences—as the week wears on, as you need to continually get the class back on track with the topic, and as your life outside of teaching constantly pulls at you. While you may have been doing this for years, this class sees you fresh, and thus you must remain that one bubbling constant of interest and motivation in the discussion threads on which the students can always count.
- **Be a frequent presence in each discussion thread—but also know the importance of being absent.** We all know how important it is to be constantly seen and "felt" by the students in the discussion threads, but it's also very important to take off one or two days during each week—no posts, no presence from you! This serves two purposes: the students can interact on their own—which is good for the class and good for you to observe (so you might jump in the next day with some new ideas), and it gives you a break, so important in keeping you refreshed and enthused for week upon week of at least one and usually more than one discussion thread.
- **Limit your number of short postings.** It's easy, oh, so easy, to be a presence while posting sentences like, "Great job, class—keep it up!" and "Tony, good thought—build on that!" or "Cathy, nice response!" but these serve little good to the lifeblood of the discussion thread if they become the dominant type of postings you offer. Just as a captain steers a boat and motivates his or her crew, so do you steer the discussion thread and motivate its students; thus longer, more substantive postings from you are important. Sure, the short ones are okay now and then, but the operative words are "now and then."
- **Be sure to transition a previous week's discussion thread to the next one.** I mentioned a lead-off post and a summary post by you. Each of these should include a smooth transition from the previous week and an easy transition into the next week. These keep the class holistic, as it should be, and the students have a much better understanding of how each discussion thread fits nicely into the whole of the class. This also allows students to more easily build on and integrate the previous week's discussion threads' postings.
- **Keep students from straying off topic in their postings**. With so many folks involved in posting to a discussion topic it is easy for students to stray, posting items not related to the topic. All it takes is one student mentioning one item not related to the topic and like a swarm of honeybees many will suddenly whiz to make their thoughts known on the subject. It's important you nip this early; if not there will be many wasted posts—and much more work for you (and possibly giving students poor discussion grades because some of their postings did not relate to the topic). Always take a positive approach in how you do it—but be sure you do it.
- **Be on the lookout for students who tend to dominate postings.** This is the student who is very much involved, but too much, sometimes even seeming to take on the role of instructor by critiquing other students' postings. While his or her enthusiasm is great the student's overbearing approach can intimidate and scare off other students from staying engaged in the threads and can

even result in not-so-nice exchanges between students. Send a private e-mail to the student, indicating you appreciate his or her enthusiasm, but it's also important to have a fair exchange of ideas—and the only way this can happen is if all have the opportunity to contribute and that no-one should ever be critiqued in front of others. A great way to end this missive is with a question: "Can I count on you?" or "Will you help me out?" You create a stronger rapport with the student while turning lemons into lemonade.

- **Post additional resources to give added interest to discussion topics.** The use of cartoons, websites, articles, etc. as they relate to a discussion topic can stimulate student interest in a discussion thread, while also adding additional info, insight, and ideas to the topic. And don't hesitate to ask students to contribute these as well—either posted or attached in their discussion posting or elsewhere in the course (designated by you).
- **Be personal in responses by responding specifically to content in student posts and by using students' names.** The more you personalize your posts the better, and this not only includes responding to content in student posts but also using the students' names. This personalizes you and helps you build a stronger rapport with others in class—always so important. Also, so the entire class will always feel you are speaking to each person in the class, even though you may be responding specifically to one or two or three students, lead off your posts with something like this: "Errol, Cathy, and all …"—this lets the class know you are not leaving anyone out in your response.
- **Remind students of the assigned reading material that relates to the discussion topic.** When instructors grade student discussion postings nearly always part of that grade rests on the depth—the quality—of student posts. Yet if students have not read the material assigned for the week—or merely skimmed it—it will quickly become apparent they have only a limited understanding of the material, and thus their posts will be superficial at best. To help prevent this remind the students—about halfway through the week—of the assigned readings and their importance to the discussion threads.
- **For students hesitant to post ask them to be in charge of a discussion.** This is a rather cool—and highly effective—strategy in getting the "quiet" student more actively involved in discussion. Send a private e-mail to X student, indicating you'd like him or her to toss out some leading thoughts and questions that relate to the topic, ending this first posting (it should come as close to your first posting as possible)—and this is crucial—by relating the topic and/or questions to experience of the student's, either personal or professional. This makes it easy for the student to start off the discussion. Once the student has agreed, in your first posting of the thread let the class know that X will be kicking off the thread discussion and you'd like other posts to follow X's lead. This does much to build the student's "posting confidence," helps get others involved, and makes for a more balanced discussion thread.
- **Call on colleagues for input and suggestions, and offer the same to them.** This can prove so helpful, for no matter how long we have been involved in leading threaded discussions in online classes we cannot possibly have all the answers, know all the strategies to improving our threaded discussion effectiveness. So, reach out to colleagues, join online listservs, send e-mails to folks who author journal articles related to online teaching: ask for their input and assistance with threaded discussion problems and concerns you

have. Believe me: you will get a throng of help!

- **If feasible use student teams in discussion threads.** Depending on your course layout, the use of teams in discussion threads can be very helpful in getting the class heavily and enthusiastically engaged in posting. This can be done by either setting up individual threaded discussions for each team or by having teams post in one discussion thread (i.e., while all can see what the other teams post team members can only respond to posts from members in their team). This is effective because of one thing: camaraderie. It is easier to see who is not pulling his or her weight, and thus all of the team members tend to post regularly; also, team members become—quickly—like a small family, very supportive of one another, and thus very helpful to each other.
- **Be sure to respond quickly to students' questions of you.** Students will not only post responses to your questions and comments, but have questions of you, either in the discussion thread or elsewhere (including e-mails). Their nature can be just about anything related to the discussion thread, but often it is asking for clarification on a point you or someone else in class raised in the thread. Jump on this quickly—no longer than 24 hours after the student posts it—so you can remain on top and in charge of the class, so the students will always see you as involved and interested, and so you can continue to move the discussion thread along in a vigorous manner.
- **Create a variety of posts to keep students more engaged.** If you post the same old-same old posts students will not only get bored of your "trademark" posts but you lose an opportunity to keep the students more engaged. And this works for the students, as well. Offer suggestions: in addition to asking questions of others in the posts suggest they also can post their own experiences, reference material in the text, bring up an article they read—anything that stays within the corral of that week's discussion topic. You must also practice what you preach: be sure to vary your own posts. The results will be richer and there will be more posts from students.
- **Be careful of killing a thread by posting too much or giving a "dead-end" post**. If you post as if you are a machine gun it's enough to scare away students from posting. You are to be a facilitator in the discussion threads, not an owner-operator! Allow enough time between your posts to give students a chance to build on what you said/questions you asked—you will have a more rewarding and engaged discussion thread. Also, if you end your posts with no questions it dead-ends the conversation. The students have a thought of yours, yes, but nothing to push forward your thoughts, which questions do.
- **Be always aware of FERPA.** FERPA—the Family Educational Rights and Privacy Act—protects students' privacy, and while most online instructors are aware of it, being certain that student grades for discussion, or any other personal info about a student (revealed to you by the student but not to the class), is never posted in a discussion thread where all can read it complies with FERPA.
- **Have students post practical applications of discussion topics if necessary.** Another great strategy to keep discussions going—and have students renew their enthusiasm for posting once the week drags on—is to ask students to post practical applications of the thread's topic; this can come from their personal or professional experience, as well as from something they know of or have read, seen, or heard but not experienced. This is always exciting for students to do because it allows them to dip into their lives, something easy for

students to do (not as much conceptualization as in plain theoretical application) and which other students will find interesting because it is a peek into someone's life.

- **Change discussion topics if it better fits the week.** If you have preset discussion topics, remember that the only thing set in stone was the Ten Commandments. Don't hesitate to change a discussion topic, as long as it stays in sync with the course's weekly readings and weekly objectives. Sometimes, a change in a topic might be warranted by the direction you see the class taking (more or less focus on a topic is needed), a topic you think better explores the course readings and objectives for the week, or a topic you believe is more topical. But don't do this willy-nilly: your course's developer/the school put much thought into the discussion topics set with the course, so think through carefully any topic change.
- **If you create your own threaded discussion threads each week, do so wisely.** Sometimes, courses are set with no preset weekly discussion topics, leaving it to the instructor to create them. If you do, create them with each week's readings, student engagement, and course objectives in mind. Also, be sure to save these; in teaching the same course again you can use these initial discussion threads as templates, to either use as is or alter.
- **Always give constructive feedback.** Be sure your feedback to students on their efforts in threaded discussions is always constructive, always positive, always encouraging, just as you would give for any student assignment. You want the students to improve, to build on what they have thus far accomplished in their threads, to remain enthusiastic and motivated for the next week's discussion thread(s)!

REMEMBER: Excursions to new lands are always more exciting, enjoyable, meaningful, and memorable when there is a guide along who is interested, enthusiastic, and involved in the trip—and when there is none, well, just look at what happened to the lemmings.

"REMEMBER, ALWAYS GIVE CONSTRUCTIVE FEEDBACK."

> caution applies well to the findings of this meta-analysis, which should not be construed as demonstrating that online learning is superior as a medium. Rather, it is the combination of elements in the treatment conditions, which are likely to include additional learning time and materials as well as additional opportunities for collaboration that has proven effective. (p. 51)

Learning time, materials and collaboration—the big 3. Apparently online students spent more time, had access to more materials, and collaborated differently than did the traditionally taught comparison students. No wonder online students tended to achieve better.

What we do not know from this report is *why* some students spent more time, accessed different materials, and had more collaboration opportunities. It is somewhat unfortunate that these important outcomes were not stressed instead of the misleading conclusion that "*students in online learning conditions performed better.*"

Many will remember the meta-analyses of the 1980s that also misled a generation of educators into thinking that computer-based instruction was superior to classroom instruction (Kulik, Bangert, & Williams, 1983; Kulik, Kulik, & Cohen, 1979, 1980). The "Kulik" studies, as they were called, concluded that students using computer-based-instruction achieved better than students who were traditionally taught. More critical analyses revealed that most of the studies included in the "Kulik" studies were methodologically flawed (Clark, 1983). Unfortunately, a whole generation of educators implemented computer-based instruction, and then waited for positive effects that never materialized.

Certainly, the USDE Report is important. It represents a review of the best studies available. The Study's authors made every attempt to be methodologically and conceptually rigorous. Perhaps the author of the abstract was a marketing adviser rather than a researcher. At any rate, this report should be read and analyzed by all distance educators.

And finally, as George Washington said over 230 years ago, "facts are stubborn things: and whatever may be our wishes, our inclinations, or the dictates of our passions, they cannot alter the state of facts and evidence."

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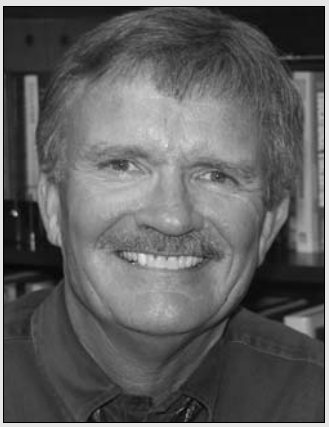
Hooray! Or, Here We Go Again!

Michael Simonson

Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies is must reading for anyone involved in education generally, and distance education specifically. This report is a comprehensive review of 51 studies that:

- "contrasted an online to a face-to-face condition,
- measured student learning outcomes,
- used a rigorous research design, and
- provided adequate information to calculate an effect size." (p. ix)



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The report's most quoted conclusion is printed in italics in its abstract and states, *"The meta-analysis found that, on average, students in online learning conditions performed better than those receiving face-to-face instruction"* (p. ix).

The 70-page report is well-written, informative, and scholarly. It is an important document that attempts to provide a state-of-the-research report on the effectiveness of online/distance education. Unfortunately, unless carefully read, the report can be misleading.

On page 51, the report's authors, staffers from SRI International's Center for Technology in Learning under contract to the U.S. Department of Education, clearly state what *should be* the most quoted outcome of this meta-analysis:

> Clark (1983) has cautioned against interpreting studies of instruction in different media as demonstrating an effect for a given medium inasmuch as conditions may vary with respect to a whole set of instructor and content variables. That

… continued on page 71

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