In this issue:

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Keywords: distance education, teaching online, andragogy, pedagogy

EDSIG activities include the publication of ISEDJ and JISAR, the organization and execution of the annual ISECON and CONISAR conferences held each fall, the publication of the Journal of Information Systems Education (JISE), and the designation and honoring of an IS Educator of the Year. • The Foundation for Information Technology Education has been the key sponsor of ISECON over the years. • The Association for Information Technology Professionals (AITP) provides the corporate umbrella under which EDSIG operates.

How Distance Education Has Changed Teaching and the Role of the Instructor

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Abstract

Reading, 'riting, and 'rithmetic have gone cyber. If only the schoolteachers of the 1800's and early 1900's could see the classroom of 2007, what would they say? The classroom has evolved from the one room schoolhouse to a virtual classroom. With this change come changes in the role of the educator. This paper delves into how the evolution of distance education has changed teaching and the role of the teacher from a disseminator of information to a facilitator of learning. It will discuss the professional development needed to prepare the teacher for teaching in the online learning environment. It also explores the use of social software (Blogs, Wikis RSS feeds and Podcasts) in the distance education environment. Finally, the paper will discuss current practices used to train future educators for teaching at a distance.

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1. FROM PEDAGOGY TO ANDRAGOGY

The model of *pedagogy* emerged from the seventh to twelfth centuries with the monastic schools of Europe. Pedagogy means the art and science of teaching children. The pedagogical assumptions about learning and learners were, therefore, based initially on observation by the monks in teaching very young children relatively simple skills—originally most reading and writing. The label "andragogy" emerged in the late 1960s. This word is based on the Greek word *aner* meaning "man, not boy" or adult. The adult learner was studied and it was determined that there were not only differences in the child to the adult learner; there were differences in the role of the teacher teaching children and teaching adults. (Knowles, 1980)

The over-whelming majority of distance education students in the United States are adults. (Moore & Kearsley, 2005) A more recent survey found that distance education students are often older than their traditional counterparts. Distance education students were, on average, 25 as first-year students and 32 as seniors, compared to traditional students' 18 and 22, respectively. (Distance Education Report, 2006). Since the adult learner is the premise for distance education curriculum, the author thought a look back at the beginning of the change from pedagogy to andragogy would segue to the next challenge for the educator; namely, teaching online. Let us look at the beginning of distance education.

2. DISTANCE EDUCATION EMERGES

Distance education as we know it today began with what Moore called the third generation of Distance Education. The period was the 1960s and early 1970s. Moore stated that this was a time of critical change in distance education, resulting from several experiments with new ways of organizing technology and human resources, leading to new instructional techniques and new educational theorizing. (Moore & Kearsley, 2005) As technology progressed, so did the progression of distance education. By the 1970's, it had achieved broad acceptance and in the 1980s, it "arrived" as one of the "flavors of

the decade" in education, in higher education especially. (Moore & Anderson, 2003) Garrison and Shale (1987) recognized the move into an Information Age characterized by technologies capable of interactive and individualized education at a distance in 1987. Keegan (1988) stated that distance education is the normal provision of education for the working man and woman, for the taxpayer, the homemaker, those who do not wish to attend a conventional institution, and sometimes for their children.

3. CHANGES IN FACULTY ROLES

As distance education grew, so did the realization that the role of the teacher was changing and must adhere to this new arena of teaching. Beaudoin (1990) stated that the emergence of increasingly student-centered learning activities in the 1970s, facilitated by new instructional technology introduced in the 1980s, is contributing to a dramatic evolution in faculty roles, and raises fundamental questions within the professoriat about how it will contribute to the teaching-learning process in the 1990s and beyond. In particular, the likelihood of significant increases in distance learning enrollments within the next decade will have a profound impact on faculty members' instructional roles. Beaudoin recognized that faculty would have to adjust monitoring and evaluating the work of geographically distant learners rather than transmit information in person. (Beaudoin, 1990)

Sherry (1995) states that distance education technologies are expanding at an extremely rapid rate. She continues on to point out that instructional designers and curriculum developers were so captivated with the latest technologies that they were not dealing with the new roles of teacher, site facilitator and student in the distance learning process. In traditional education, teachers interact directly with their students. In contrast, distance-learning teachers are not in direct classroom contact with their students. The distance-learning teacher is the common thread throughout the distance learning process. She must be certified for the appropriate grade level, knowledgeable in her subject area, and trained in effective distance education strategies.

These strategies must be developed with the adult learner in mind. Working with these adult students requires an understanding of a different slice of student development theory than is required for traditional-age students. Adult students are very different from traditional students. (Distance Education Report, 2006)

Electronic technologies have increasingly changed the interaction between instructor and student. For most of the 20th century, distance education involved pen and paper, the typewriter, and the postal service, which provided the sole link between the individual instructor and the individual student. With the development of the radio and then television, it became possible to transmit educational courses, programs and content widely using these mass media distribution channels. (Moore & Anderson, 2003). The development of the World Wide Web and satellite enables even broader access to university courses.

Interaction is also a very important aspect of the role of the instructor in distance education, and one that changes in the online environment. Learning involves two types of interaction: interaction with content and interaction with other people. Technology available today allows interaction with and about the content. In the past, while this interpersonal interaction has occurred almost solely between instructor and student in distance education, it is increasingly possible for students to interact with one another, even when geographically separated. The most important role of the online instructor is to model effective teaching and accept "the responsibility of keeping discussions track, contributing special knowledge and insights, weaving together various discussion threads and course components, and maintaining group harmony". (Berge, 1995)

A study finds that there is no question that the role of the teacher is changing. (T.H.E. Journal, 2000) The teacher is no longer the "dispenser of information", with the increase access to resources on the Web. In some communities, the changes taking place are transforming schools, doing away with traditional buildings, providing flexible hours, making available large amounts of multimedia, etc. These are certainly changing the role of the teacher.

Sellers (2001) writes that the traditional classroom teacher is often viewed as the initiator of all classroom activities, and as

such is held responsible for students' learning opportunities. Online learning is ultimately student-centered and student-driven. The online environment encourages student-centered learning in which intellectual acquisition replaces the didactic force of the teacher as the main impetus of learning.

As evidenced by various studies mentioned, the most critical issue in this educational revolution is the role of the instructor. The distance instructor loses a certain autonomy common in the traditional classroom. In online learning, the instructor becomes a member of a team; subsequently, the instructor no longer has total control of the learning environment. For a number of years, teachers have managed classes by virtue of their control on information. Now, with instant access to vast resources online, students are no longer dependent on the teacher alone for knowledge. Muirhead (2001) wrote that distance education would demand changing the traditional role of teachers from information transmitters to guides who arrange meaningful learner-centered experiences.

Many studies suggest the constructivist model of teaching works best for the online environment. Educational technologists have often implied that an effective way to integrate technology into the teaching and learning process is to follow a constructivist model. Constructivist instruction asks learners to use their knowledge to solve problems that are meaningful and realistically complex. The problems provide the context for the learners to apply their knowledge and to take ownership of their learning. (Tam, 2000)

The teacher's job becomes one of facilitator in a constructivist model. Instead of telling students the answer, the teacher asks questions to help them discover the answer themselves. For this type of teaching to be successful, teachers need to give students time to explore the material and construct meaning from the experience. That the roles of teachers and learners are changing is an obvious assumption**.** (Sellers, 2001)

When integrating student experiences with technology, the role of the teacher changes. The teacher no longer has to be in charge, but can give some of the control over to the students and the technology. The task for the teacher is to arrange the learning environment in such a way as to provide situations in which students use their own knowledge to construct meaning of a particular problem. A learning environment is created in which students are active participants in the learning process. (Sellers, 2001)

Moore stated that the basic principle in setting up a constructivist learning environment is to establish the minimum structure that allows the maximum degree of dialogue between the students. What this right balance of structure and dialogue is depends on the educational sophistication of the students and the subject to be learned. He further states that to achieve constructivist learning, we want to create learning communities. The learning community is one in which students build knowledge together; they also support each other emotionally and in practical ways. (Moore, 2004) The learning community is the vehicle through which learning occurs online. Members depend on each other to achieve the learning outcomes for the course…without the support and participation of a learning community**,** there is no online course. (Smith, 2005).

4. SOCIAL SOFTWARE: TOOLS TO FACILITATE LEARNING COMMUNITIES

Social software is integral to the lives of many college students. (Bordeaux & Boyd 2007). The technology revolutions of the 80s and 90s have long since worked their way into day-to-day life. But there is a mini-revolution that's going on right now. Blogs, wiki's and podcasts are words that most have heard, but they represent innovations that many have yet to use or even fully understand. (Distance Education Report, 2006) In addition, RSS (Really Simple Syndication, RDF Site Summary, or Rich Site Summary) feeds can contribute to the development of a learning community in an online class.

A Wiki (WICK-ee or WEE-kee) is an online information resource that allows anonymous users to create, edit, link, and share information with other users via a web browser. It is unique in that non-technical users have the ability to freely contribute content and to organize it as they consider appropriate. Information posted to a wiki is immediately available for review and discussion. The spirit of the idea is that a wiki enables collabo-

ration on an unprecedented level, and this can be applied to a myriad of different situations in education to great benefit. (Cernohous 2007).

Blogs, also known as Weblogs or Web logs, are online journals or newsletters. With a class blog, students subscribe to that blog and post something to it, it goes to the blog feed and they all subscribe to that. Students post to the wiki as well. They're allowed to post to the wiki and they can subscribe so that any time anyone posts anything to the wiki it tells them and they can go see what it was. (Distance Education Report 2006)

RSS feeds can be used to have students do peer-to-peer exchanges of information. . It's a philosophy called social constructionism—the idea that we learn from each other, we learn from our peers and that that interaction is an important part of learning. (Distance Education Report 2006)

The word 'Podcast' comes from the words "iPod" and "broadcast". Podcasts are a great educational tool, whether you are a student or you are out in the working world. Students can download course lectures, an easier way to recover from missed classes. (DeLong 2007)

Since the idea of a learning community is to have the students share with each other, like an educational social network, the use of social software makes sense.

5. TOOLS FOR THE VIRTUAL ENVIRONMENT

There is a myriad of software packages on the market trying to grab the online learning environment market. A short list would include such products as Blackboard/Webct, Angel, Sakai 2.0 and Moodle 1.52.

Another area that affects the change of the role of the instructor in distance education is the Transactional Distance Gap. Moore's Theory of Transactional Distance defines the role of faculty in distance education. This concept of "transactional distance" defined the relationship of instructor and learner. (Moore & Anderson, 2003) According to Moore, transactional distance is the gap of understanding and communication between the teachers and learners caused by geographic distance. It is filling this 'gap' of

understanding and communication between the teacher and learner that defines the role of the instructor. The instructor must be the one to bridge that gap through special teaching techniques, distinctive procedures in instructional design and the facilitation of interaction. (Moore & Kearsley, 2005).

Theodore Smith outlines fifty-one instructor competencies that appear necessary for delivery of an effective online program. He also outlines an instructor-training program that satisfies three of the 24 benchmarks for excellence recommended by the institute for Higher Education Policy. Several of these benchmarks directly reflect the changing role of the instructor. These include the following:

Teaching/Learning Benchmarks

- Student interaction with faculty and other students is an essential characteristic and is facilitated through a variety of ways, including voice-mail/or e-mail

- Feedback to student assignments and questions is constructive and provided in a timely manner.

- Students are instructed in the proper methods of effective research including assessment of the validity of resources.

6. HOW DISTANCE EDUCATION HAS CHANGED THE K-12 CURRICULUM

Technology has transformed teaching and learning in schools that are preparing their students for the 21st century information society. Hardly a day goes by without major developments in emerging charter schools, virtual high schools, advanced placement courses, and online testing among many others that directly affect the lives of a administrators, teachers, and students in schools. (http://www.distance-educator.com/k12/)

Virtual Schools

Enrollment in K-12 online courses in the United States has exploded in the past year, increasing by as much as 50 percent in some states, according to a new report form the North America Council for Online Learning (NACOL). According to the report, 38 states now feature either state-led online learning programs, policies regulation online education, or both. (Murray 2006)

In addition, a variety of pre-secondary schools in Canada, Australia, the United Kingdom, and elsewhere has opened their "virtual doors". The demand for virtual schools is driven at least in part by fundamental changes in our society and the students who inhabit it. As ubiquitous communications and immediate access to information have become more common, learners recognize that learning can be an anytime-anywhere experience. (Davis & Roblyer, 2005)

Virtual Schools can be defined as a school that:

- offers courses primarily online via the Internet

- specifically targets K-12 audiences in a focused way

- reaches an audience larger and broader than a traditional school,

- is either accredited or linked with an accredited organization (such as being linked to a school district or college), and has the ability to grant credit to its students and may offer a diploma (Gray, 2005)

According to Rothermel (2005) virtual educators are reshaping the routine learning modes of the traditional school day to a dynamic, interactive real-world learning environment that presents choices to parents and students and requires students to take ownership of the learning process.

However, there is a growing controversy about virtual schools not providing the social interaction with the teacher and with other students in the classroom. The following list demonstrates several advantages and disadvantages of online/virtual schools:

Advantages

- Students can proceed at their own pace

- Students can replay audio lectures or video clips

- Slower students do not slow down their classmates

Disadvantages

- This type of learning is a poor substitute for face-to-face interaction with teachers and peers

- There is an issue around self-motivation

- Socialization of the student, a benefit to brick and mortar schools, is a concern (Gray, 2005)

Despite these disadvantages, virtual schools are a rapidly growing phenomenon in American elementary and secondary (K-12) education. They are the latest and potentially the most controversial manifestation of the e-learning revolution in schools.

With the rapid growth of virtual schools, Education departments of higher institutions need to update their teaching methods courses to include methods of teaching at a distance. Matthew V. O'Neil was a Physics Education teacher in a Cyberschool in Pittsburgh, and a December 2005 graduate of Indiana University of Pennsylvania. In a recent interview with M. O'Neil (personal communications, November 7, 2005) he states that the teaching method taught to him (constructivist method) did help him deliver his content, but he finds the textbook so bad, it makes it very difficult to do his job. This reminds one of Weyemeyer's system approach theory. It indeed does take a village to deliver a distance education course. He stated he did not have any courses in his college curriculum directed to teaching online. The question then is who is to train our future teachers in the area of distance education? Institutions of higher education must address this question. Students graduating in 2005 must be prepared for teaching in the online environment. The disconnect between many current educational methods and those possible in an information-connected environment is becoming increasingly obvious. A new kind of student requires a new kind of schooling. (Davis & Roblyer, 2005)

It has become apparent that successful online teachers also require a unique set of skills. There is persistent opinion that people who have never taught in this medium can jump in and teach a class. A good classroom teacher is not necessarily a good online teacher. (Davis & Roblyer, 2005)

Davis & Roblyer also cite that there are several areas of unique competence for distance instructors, all of which require experience with distance learning environments.

- Course planning and organization that capitalize on distance learning strengths and minimize constraints

- Verbal and nonverbal presentation skills specific to distance learning situations

- Collaborative work with others to produce effective courses

- Ability to use questioning strategies

- Ability to involve and coordinate student activities among several sites

They further state that many communication skills required of the online instructor are similar to those needed for effective classroom teaching. However, the online instructor's role requires a paradigm shift in perceptions of instructional time and space, virtual management techniques and ways of engaging students through virtual communications.

"Not all faculty are suited for the online environment". "Faculty cannot be expected to know intuitively how to design and deliver an effective online course because, even though courses in technology are becoming more available to students, "seasoned faculty have not been exposed to techniques and methods needed to make online work successful". Instructors need training and support to be willing to adopt this new teaching paradigm and need to be cognizant of how the details of their course will be implemented in the new environment. (Smith 2005 P 2)

For distance education to be used effectively, faculty facilitating such courses should be trained in the technology as well as the pedagogy of distance learning. "Teaching online is a new experience, different from teaching in the classroom. It requires a different set of skills and a different pedagogy". "Although there are many individuals in the field who champion the educational value of the Internet and other online information systems, there is a preponderance of anecdotal evidence that the absence of formal training opportunities for faculty is the greatest impediment for acceptance and subsequent use of the Internet in higher education". In a survey conducted of online faculty, 24 percent of respondents indicated insufficient training in how to use the Web was an obstacle to Web-based teaching. In that same survey, 45 percent of respondents indicated that they want additional training on how to teach using the Web. Training must be conducted not only for full-time faculty but also for adjunct faculty members. Training for teaching via distance education is considered essential (Wolf, 2005 P 27)

Teaching Online: Who trains the teacher?

The United States Distance Learning Association (USDLA) is the leading distance learning association in the United States. It serves the needs of the distance learning community by providing advocacy, information, networking and opportunity. The United States Distance Learning Association was the first nonprofit Distance Learning association in the United States to support Distance Learning research, development and praxis across the complete arena of education, training and communications. In 1987, the USDLA was founded on the premise of creating a powerful alliance to meet the burgeoning education and training needs of learning communities via new concepts of the fusion of communication technologies with learning in broad multidiscipline applications. The learning communities that USDLA addresses are pre K-12, higher education, continuing education, corporate training, military and government training, home schooling and telemedicine. In addition, USDLA is also focused on national and international technology based Distance Learning. (http://www.usdla.org)

In the Fall of 2004, a project was funded by the US Department of Education to create a model to integrate a comprehensive virtual school curriculum into four diverse programs of preservice teacher education for the first time. This project was called the Teacher Education Goes Into Virtual Schooling (TEGIVS) project. This project was funded by a land grant university, Iowa State University. The project aims to spread to a large public southern university, the University of Florida, a highly selective eastern university, the University of Virginia, and a liberal arts college, Graceland University with several Midwest campuses, including a virtual campus. Collaborating virtual schools, consultants, and a community of

practice will support this creation of an innovative and transferable model of curriculum for more than 1,000 teachers' colleges across the United States. The project has three complementary strategies to address these problems and build a model: (Davis & Roblyer 2005)

- Curriculum development in teacher education to map virtual schools into the four programs and adapt or create selected courses that will include assessment of virtual school competence against standards.

- Tools to expose virtual schools will be created. For example, shell software will be created to provide a means for preservice students, faculty, and staff to select and explore particular instances of virtual schools, drawing upon related software design such as the goVHS tour (http://www.govhs.org/) and the eDoc electronic portfolio project at Iowa State University.

- A national community of virtual school practice in teacher education is being developed to facilitate adoption of virtual schools into teacher education nationwide.

An increasing area of interest is online faculty development for adjunct instructors. These instructors often lack the knowledge of pedagogical and learning theory that their full-time counterparts may have obtained as part of their preparation to teach, or in subsequent faculty-development opportunities. Working with a committee of former adjunct instructors, Cathy Bennett, associate dean of Learning, Information Services, and Technology for Belmont Technical College (BTC) in Ohio has devised a Virtual Faculty Lounge that allows adjunct instructors to access training and resources any time of the day, whether they are on or off campus. (Lorenzetti, 2007) The learning plan includes recommendations in four major areas:

- Classroom organization and processes (including time management, syllabus) development, course preparation, class process, and computer/software use.

- Content presentation (including lecture/presentation techniques, communication skills – verbal, nonverbal, and

written – professionalism, and subject knowledge)

- Fostering learning (including brain-based learning, active learning, constructive feedback and evaluation, developing students' lifelong learning skills, and fostering responsibility)

- Learning environment (including cooperative learning, learning communities, learning and teaching styles, developing and communicating high expectations, and supporting diversity). (Lorenzetti, 2007)

7. CONCULSION

Common themes occur in researching the role of the instructor in an online environment. Themes like student-to-student interaction, student to teacher interaction, and constructivist methods of teaching. Research has not discovered anything regarding the online forms of distance education that would change the general principles about teaching previously identified by research into teaching by print or audio and video technologies. From that research, it has been clear that one of the keys to effectiveness is that the instructor takes full advantage of the interactive nature of whichever technology is being used. This means bringing learners frequently into action by asking questions, encouraging student presentations, getting students to talk to each other, and in other ways involving them fully in the teaching-learning process. (Moore, 2005) In the viewpoint of Zane Berge, "The technology will not improve learning any more than a new schoolhouse will improve learning in our brick-and-mortar classrooms today." (Moore & Kearsley, 2005 P 97) Can we teach old dogs new tricks? Perhaps the tricks are not new, just altered, updated, or revamped to suit another environment. By using new technologies like wikis, blogs, podcasts, and RSS feeds, the instructor can effectively involve the students in the learning process. We do not have to re-invent the wheel to train the teacher to teach at a distance; just restructure the wheel, to travel into cyberspace. By using the technology familiar to students as a teaching tool in the online environment, we can better meet the needs of our students, at a distance.

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