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ABSTRACT

This paper reports the perceptions of inservice teachers participating in a World Wide Web-based university course. The pedagogical soundness of distance education courses that model constructivist learning theory and that are available to learners at times and places convenient to them are also examined. Qualitative methods were used to collect data, including an open-ended student questionnaire (the middle and end of the semester course analysis), electronic journals kept by the participants, and in-depth interviews with four participants. Content analysis and analysis of emerging themes were used to analyze the data. Themes from the questionnaire were grouped into four categories: class perceptions, technology, self, and professor. Themes that emerged from the journals were divided into three categories: class, problems, and feelings. The interviews revealed that students come to class with a set of ideas and assumptions that situate them more or less in the constructivist paradigm or in the traditional paradigm. (Contains 14 references.) (MES)

More than Having a Connection: Qualitative Factors that Affect Learning in a Web-based University Course

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Abstract:
Web-based courses are becoming more common. Although several studies have been conducted to research the effectiveness of those courses, few investigations have focused on the human aspect of an online course. This paper proposes that for an online learner, the way she or he feels during the course itself is as important as the course content. In addition, the professor's abilities to lead an online course are crucial for the success or failure of the course.

Introduction

Technology in the Communications Age impacts learning and education by providing numerous sources of information and communication. The new electronic technologies present teachers, administrators, and policymakers with both unprecedented opportunities and unprecedented challenges. The Communications Age promises the delivery of information and education "anywhere, anytime." Technology is changing the landscape of education and creating a new set of possibilities for attending college.

Due to the diversity of today's learners, it is necessary to offer many diverse forms of education (Office of Technology Assessment, 1993). In support to this, Secretary of Education Riley (1997) stated, "Technologies also are important for providing opportunities in higher education at a time when college is becoming more crucial ... making courses available at convenient locations; reducing time constraints for course-taking; making educational opportunities more affordable; and increasing the institutions' access to new audiences."

Owston (1997), in an analysis of teaching and learning on the World Wide Web (WWW), concluded that a promising case exists for the Web in three vital areas: access, improved learning, and cost effectiveness. Institutions of higher education will need to understand how to utilize these new media while maintaining instructional quality and meeting an increasing demand for continuous professional development of the knowledge workforce.

Many factors, including tradition, funding, credit units, semester schedules, and other academic structures, constrain institutions to geographic boundaries and on-campus classes. However, as Olcott (1999) pints out, "preserving historical traditions and embracing new innovations can occur together."

The rate of Internet use is constantly increasing. In 1994, three million people were connected to the Internet. By the end of 1997, more than100 million people were using the Internet, and its traffic has been doubling every 100 days (U.S. Department of Commerce, 1998). Distance learning programs that use communication technology, especially the Internet, have been growing. These programs cater to students who share the following characteristics: (1) they have families and jobs, (2) they come to school after work and before going home, (3) a large number of them already have a college degree, (4) they are returning to school for retraining, to learn new skills, or to obtain an additional degree or certification for professional achievement, and (5) they

have high expectations for products, goods, and services, and many of their expectations have been created in technology-mediated environments (Fulkerth, 1998).

Purpose

Traditionally, studies have focused on the quantitative effectiveness of distance education as compared with a face-to-face setting (Miller, McKenna, and Ramsey, 1993; Souder, 1993, to mention some). However, an important aspect of the learning process is sometimes left out: the perspectives of the distance education students. The purpose of this paper is to report the perceptions of inservice teachers participating in a web-based university course.

Additionally, the researchers wanted to analyze and study the pedagogical soundness of distance education courses that model constructivist learning theory and that are available to learners at times and places convenient to them. Online teaching is a relatively new development, but recent research has shown it to have as much rigor and educational merit as is found in face-to-face courses (Sujo de Montes, 1999). Frank Odasz states, "the promise of online teaching is both the teacher and learner can be anywhere, participating at any time, through any type of microcomputer with modem. If online instruction can demonstrate economies of delivery of distance learning, it opens the door to ongoing learning for all potential learners" (Odasz, 1994). Christopher Dede (1996) says that technology can help transform schools but only if it is used to support new models of teaching and learning. Interactive distance learning (distributed learning) is a use of technology which supports constructivist pedagogy and school reform. It provides opportunities for faculty and students to communicate in and out of the classroom, become members of learning communities, utilize information from voice, text, graphic and television-video sources, develop technology competencies, and construct and apply knowledge.

Theoretical Framework

Constructivism and adult learning theories framed the present study. Constructivism views the learner as an active living being who internally creates interpretations of the world based upon his or her experiences and interactions with the environment, which are socially and culturally mediated (Cunningham, 1992; Fosnot 1996; Perkins, 1992). Constructivism also endorses the idea of the teacher as a facilitator, a senior partner whose function is to help the learner develop the skills to construct and reconstruct plans to respond to everyday life's diverse demands and opportunities (Cunningham, 1992; Duffy & Jonassen, 1992).

The word "constructivist" is defined as both a theory of learning and a strategy for education which involves having students work on complex projects, often in groups, and synthesize information to construct their own understanding of a content area. In this model, students learn technology skills and concepts in the context of using them to solve a real-world problem; for example, they might create a product they can use in their classroom. These projects follow from a theory of learning that suggests that subject matter becomes meaningful, and therefore understandable, when it is used in context-rich activities (Fosnot, 1996). The courses will be designed to emphasize the students' own responsibility for learning, for figuring out their own methods of solving problems, and for assessing their own work. Teachers who learn in this way will be better able to provide such environments for their own students.

On the other hand, adult learning theories emphasize the importance of participation, choice, experience, critical reflection, and critical thinking (Froman, 1994). Andragogy, the art and science of helping adults to learn, first pioneered by Malcolm Knowles in 1968, is a conceptual framework useful in organizing the way we look at learning with adults. Andragogy is based on humanistic assumptions about the adult as a learner, characterized by an independent self-concept, a depth and breadth of prior life experiences that can be used in learning, internal motivation, and the acquisition of new skills learned by an individual who is actively engaged in the learning process. Knowles' (1980) theory of andragogy is an attempt to differentiate the way adults learn from the way children learn. Andragogy assumes that learners learn what they need to know, moving towards autonomous self-direction and drawing from the rich resources of their prior experiences. In other words, adults

learn more efficiently by doing or experiencing. Unless what is learned can be applied to actual work of life situations, the learning will not be as effective or long lasting.

Methods and Data Sources

Different methods from the qualitative paradigm were used to collect data. These methods included (1) an open-ended questionnaire (The Middle and End of the Semester Course Analysis), (2) electronic journals, and (3) in-depth interviews. They will be briefly discussed below.

Middle and End of the Semester Course Analysis

This email delivered, open-ended questionnaire was administered at the times indicated in its title. It asked the students' perceptions about their own technology learning and the ability to integrate it into their daily practice. The survey also asked the students' opinion about how beneficial their mentoring relationship with the course professor was. Two other questions addressed how students felt about the class and about using technology. The responses to the questionnaire were sent to the researcher and were treated as confidential data.

Electronic Journals

Online journals were kept by the participants and sent weekly to the instructor and the researcher. In these journals, students discussed their accomplishments and/or problems with the assignments. Journals were also a channel through which the participants vented their frustrations with technology, with timing of the projects, and with group work. However, they were also an avenue to keep the communication open between the students and the course professor, providing a sense of participating in a class, even when there were no walls and times that delimited such a class.

In-Depth Interviews

Four participants were asked to participate in a series of three interviews, each of which lasted approximately 90 minutes. Following Guba and Lincoln (1989), the researcher selected a purposeful sample. Interview participants included an elementary teacher, two high school teachers (one first-year teacher and one veteran teacher), and a technology coordinator. Each of the interviews were conducted utilizing a chat room. The times and dates were selected by the participants, and ranged from 6:30 a.m. on a Sunday morning, to 5:00 p.m. on a weekday. Transcripts of the interviews were obtained from the software environment that was utilized to deliver the course. In other words, the researcher did not need to transcribe the interviews because they were automatically recorded as they happened. The content was retrieved and the files were immediately erased to avoid any confidentiality issues.

Results and Conclusions

Content analysis and analysis of emerging themes were used to analyze the data collected from the open-ended questionnaire and the electronic journals. Analyses of emerging themes were used to examine data collected in the in-depth interviews. The data collected from each source will be briefly discussed below.

Middle and End of the Semester Course Analysis

The emerging themes from this open-ended questionnaire were grouped into four categories: (1) class perceptions, (2) technology, (3) self, and (4) professor. In the *class perception* category, the major theme that emerged was group work. As might be expected, some responses complained about groups that did not work

well together. However, most of the responses were positive about how supportive it was to create the class projects in a group environment.

In the *technology* category, the salient theme was the improvement of technical skills. Responses abounded about how useful this class was to sharpen the participants' technical skills. The researched class was almost considered as "in-time professional development" since it allowed participant teachers to apply their newly acquired skills to extend their own classroom activities that already utilized technology, and/or plan and try new activities.

The third category, *self,* was an interesting one. Although the most mentioned topic was "problem solving," the theme "frustration" was very much mentioned. Frustration usually came from having technical difficulties with the software and/or hardware, as well as with having server problems.

The main themes of the fourth category, *professor,* expressed the importance of the role that the course professor plays in the success or failure of an online course. The two main themes, "professor support," and "professor as a mentor," discussed the participants' positive feelings of knowing that there is somebody "at the other end of the line" who gives them feedback and encourages them in their learning endeavor. At the same time, the class participants perceived having a good mentoring relationship with the course professor. Undoubtedly, the professor's efforts to have constant communication with the participants through the journals and separate email messages contributed to the development a good mentoring relationship.

Electronic Journals

This data source provided a greatest insight into the students' perceptions. Journals were also analyzed using content analysis and analysis of emerging themes. The themes that emerged from the journals were divided into three categories: (1) class, (2) problems, and (3) feelings.

In the first category, the main theme was again "group work" which was mentioned in almost every journal entry. For groups whose members lived geographically apart, they discussed their adventures on trying to synchronize and meet in one of the chat rooms to discuss the assignments. For groups whose members lived in the same location, their journals discussed how important it was for them to meet face-to-face and receive support from each other. As discussed above, journal entries on this theme also discussed their frustrations when groups did not click together and completing an assignment was a monumental task.

In the second category, *problems,* two themes emerged and were mentioned in the journals the same number of times: technical problems and self-organization. The "technical problems" theme was already discussed in the section where the open-ended questionnaire results were presented. The other theme, "self-organization," discussed the problems that the class participants experienced to meet their job and family commitments and simultaneously keeping up with the pace of the class. For some of the participants, the convenience of taking a class at any time at home turned into an inconvenience. For them, constant interruptions from their families made working at home a stressful and difficult situation. For others, being able to take a class from a higher education institution without having to travel was a blessing.

Finally, in the last category, *feelings,* two themes that emerged and were mentioned nearly the same number of times were "frustration" and "reflection." "Frustration" was already discussed above. In the "reflection" theme, participants wrote about their ideas and thoughts on how to improve their daily practice based on what they were learning through experience and self-monitoring of improvements while participating in the investigated class. As Froman (1994) noted, reflection is the result of climates that support open communication, beneficial debate, and critical evaluation of untried assumptions and values. The online class was a conducive environment for thoughtful participation and personal growth.

Many other themes emerged from each category, but only the major ones were discussed. By doing a content analysis, the researchers discovered that the number of times the different themes in the *class* category were mentioned tallied almost the same number of times the themes in the *feelings* category were discussed. This is

an important result because it suggests that for an online student, meeting the class requirements, deadlines, and completing the class projects are as important as they way s/he feels during the learning experience.

In-Depth Interviews

This data source did not provide a major insight into the way a student feels while taking an online course. However, it revealed that students come to class with a set of ideas and assumptions that situate them more or less in the constructivist paradigm or in the traditional paradigm. Of the four interviewees, three were situated in the constructivist paradigm and the fourth was more in the traditional paradigm. This result needs to be further analyzed and looked for connections between online students' teaching paradigms and the degree of technology proficiency and risk-taking ability that students exhibited during the class.

In summary, qualitative data provided an excellent avenue for gaining an insiders' view of the learning experience from the students' perspective. An important result of this research was to understand that for a distance education learner, the way she or he felt during the course itself was as important as the course content and assignments. In addition, it is important to recognize that the professor's abilities to lead a web-based course are crucial for the success or failure of the course. Of utmost importance is the class atmosphere that the course professor creates through the degree of communication that s/he maintains with the students.

Educational Importance of the Study

After several years of investigating the effectiveness of distance learning, researchers need to focus on the human aspect of such interactions. Even when the Internet has become ubiquitous, more research is necessary to understand what happens after the web-based course participants get efficient hardware and a good Internet connection. Although the results of this study are not conclusive, they provide an insight into the complex interactions that occur in a web-based distance education course.

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