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ABSTRACT

The purpose of this study was to examine and describe the incidental learning activity of students in an asynchronous online course in a higher education setting. This research was conducted with data collected from interviews, journals, observations, email messages, and online conferencing software postings of 22 members of three sections of a graduate-level asynchronous online distance education course at Northwestern State University of Louisiana in the spring of 1998. Two types of incidental learning outcomes were observed. The first developed from the students' use of the technology itself. The second centered on an improvement in certain areas of the students' personal development. An increase in time management ability, self-directive behavior, self-confidence, and self-discipline occurred. The results of the study illustrate the value of incidental learning in an asynchronous online course and the need for coursework development that fosters the growth of incidental learning. (Author)

Incidental Learning in a Higher Education Asynchronous Online Distance Education Course

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Abstract: The purpose of this study was to examine and describe the incidental learning activity of students in an asynchronous online course in a higher education setting. This research was conducted with data collected from interviews, journals, observations, email messages, and online conferencing software postings of 22 members of three sections of a graduate-level asynchronous online distance education course at Northwestern State University of Louisiana in the spring of 1998. Two types of incidental learning outcomes were observed. The first developed from the students' use of the technology itself. The second centered on an improvement in certain areas of the students' personal development. An increase in time management ability, self-directive behavior, self-confidence, and self-discipline occurred. The results of the study illustrate the value of incidental learning in an asynchronous online course and the need for coursework development that fosters the growth of incidental learning.

Introduction

The information and resources offered on the Internet, or the World Wide Web, are becoming a normal part of the academic lives of students in institutions of higher education throughout the United States and the world. Statistics about the Web and its users are changing daily, and the numbers are increasing rapidly. The Web provides a vital link to information and research. Colleges and universities have discovered that learning does not have to be confined to the four walls of a traditional classroom, and institutions of higher learning are harnessing these resources to reach their students and provide crucial, timely, and in-depth material, often through the method of distance education. Higher education faculty and administrators need to look at what students are learning in their online distance education courses in order to design effective online courses. A statistical analysis completed by the National Center for Education Statistics (NCES) in 1997 shows that a third of higher education institutions offered distance education courses in the fall of 1995 and another third planned to offer such courses in the next three years. Computer technology is becoming an important element for distance learning. It provides a powerful way to communicate, search for and retrieve educational resources both locally and globally, network using media such as the Internet, and access collaborative learning environments (Franklin, Yoakam, & Warren, 1996). Institutions of higher education are discovering that courses conducted online through this electronic medium benefit both the institutions and their students.

Incidental Learning Research

Research beginning as early as 1928 showed no significant difference in the comparative impact of technologies on the students' primary learning (Russell, 1997). This primary learning is the learning that is obtained by students from the formal curriculum of a particular course. However, unintended or unanticipated learning does occur in these technologically diverse settings (Mealman, 1993). The general literature concerning incidental learning describes student learning outcomes that have not been part of the planned curriculum (Apps, 1978; Brookfield, 1986). It is suggested that the unintended consequences of a learning situation are often more important to the learner than the original objectives (Jones, 1982).

Not all incidental learning is positive or desirable. Ragsdale (1997) discusses what he terms "unanticipated outcomes" when technology is integrated into the classroom setting. When students are left

alone while they use technology, teachers tend to overestimate the computer skills of the students. He found that students tended to skip from one task to another and had difficulty completing their tasks.

Several researchers have focused on informal learning as it relates to the adult learner. Withnall (1990) identifies definitions and types of informal learning and examines issues such as the utility of informally learning the processes involved, and the lack of methods to assess the quality of learning acquired informally. Lankard (1995) addresses some of the new ways adults learn at work, including action learning, situated learning, and incidental learning. She writes that incidental learning is unintentional and unexamined. It is not based on reflection; thus the learning is embedded in the learner's actions. The difficulty in validating incidental learning as an effective learning strategy is that learning is not anticipated; therefore, it is not easily assessed. The primary intent of the activity is to accomplish the task, not to learn. When incidental learning occurs, it is a byproduct of other activity. The learner discovers something while in the process of doing something else. The learner must pull away from the primary or planned task and examine the discovery clearly before he can learn from it.

One case study of incidental learning by adults in a nontraditional degree program appears to be the most definitive (Mealman, 1993). The study looked at the nature of students' incidental learning and specified the role that incidental learning played in the student experience in the nontraditional adult degree program. Mealman found that students did not make distinctions between incidental and intentional or formal learning. He also found that incidental and intentional learning played equally important roles in the students' overall experience.

Purpose and Research Questions

Because of the need for understanding the experiences of students concerning incidental learning in asynchronous online distance education courses, the researcher of this study looked for answers to two questions: "What incidental learning occurs in a particular graduate level asynchronous online distance education course?" and "What is the nature of the students' incidental learning?" The purpose of the study was to examine and describe the incidental learning activity of students in an asynchronous online class in a higher education setting. This study was based on a deliberate research method with the following characteristics: dialogue with graduate students, direct observation of online activity, email summaries, posted class materials, and semester-length student journals.

The researcher considered questions involving the nature of the students' incidental learning, the characteristics of the individual participants in the electronic online course, the students' degree programs, and the amount of time the students invested in the course. She also observed the frequency of conference postings by the students, the motivation of the students to participate in this particular type of educational course, the nature of the students' enthusiasm for the use of current technology for educational purposes, and the changes that participants perceived in themselves as a result of participation in this electronic online course.

Methodology and Data Collection

A qualitative methodology was used to collect data from students in the three sections of a graduate level distance education online course during the spring, 1998, semester. The study consisted of an individual initial interview with each participant, an individual exit interview with each participant, and a late-semester email checkup with the participants. The researcher monitored all conference postings and email messages to the instructors and to individual students and conducted several observations of students as they posted material to the conferencing software. The researcher analyzed a small collection of journals kept throughout the semester by a few of the participants and investigated the official grade books and grade sheets used by the instructors of the two groups.

The physical locations of the participants varied widely. Some were on the local university campus; many were near the main campus of the University in Natchitoches, Louisiana, or the surrounding small communities; a large group was in the middle schools of Bossier Parish, Louisiana; some were in other parts of Louisiana; and several were in other states. None were outside of the United States.

The researcher conducted two standardized open-ended interviews with each of the participants. The interview at the beginning of the semester was designed to determine the current technology learning level of

the participant, to delineate participant experiences with online courses, and to elicit participant beliefs concerning necessary skills, time involvement and anticipated learning in this particular online course. Twenty-two initial interviews were conducted. The interview with each of the participants at the end of the semester was designed to determine the participant's unanticipated or unexpected learning outcomes. The researcher conducted twenty-one exit interviews. The researcher analyzed student journal entries for student insights. The participants could choose not to allow the researcher to use the journal to acquire data. Instead, the participants could use the journal solely for their own personal reflection. In this case, the researcher was able to access some of this information in the end-of-semester interviews with each participant. Nine participants kept journals throughout the course, and four participants gave their journals to the researcher at the end of the semester. The researcher asked the participants to include electronic mail communications received throughout the semester in their journal entries so the researcher could access and analyze this data. The researcher traveled to the physical location of eight participants to observe behavior in composing and posting messages to the conferencing software, TopClass and WebBoard. The researcher observed the participant's interaction with the technology, methods of posting, and collected field notes in a descriptive form. She read, organized, and analyzed all written online conference postings to document the learning that was taking place during the course. The researcher acquired all email messages received by the instructors of all sections of the course and all email messages posted through the conferencing software. She recorded her own personal experiences throughout the study to use as a reflection of the field experience. The researcher acquired responses from an informal open-ended questionnaire conducted via email at the mid-semester point of the study. Triangulated information was gathered from participants by use of official documented data, interviews, email surveys, observations, and journals.

The researcher observed and analyzed the written material posted online by each of the students in the course, formally interviewed the participants in both sections of the class at the beginning and end of the respective semesters, observed participants as they prepared and posted online material for the course, compiled answers to a mid-semester email questionnaire sent to participants, and collected and analyzed data from journals that participants kept throughout the semester. The data from all interviews, observations, journals, and conference postings were compiled and analyzed by the researcher to determine the amount, type, and effect of incidental learning that occurred throughout the course.

The Conferencing Software

To be able to participate in an online class, students need more than just computers and phone lines. Some type of software that facilitates sharing and communicating of information is required. This study deals with World Wide Web software for text-based, asynchronous group discussions. It is not concerned with real-time (synchronous) chat, video, or audio conferencing, although all of those are excellent means for students and instructors to communicate over a physical distance.

Two sections of the course used TopClass (TopClass, 1997), a system for developing and delivering Web-based training, including discussion forums. Its developer is WBT Systems and it runs on UNIX, Windows, and Macintosh systems. This software was put on a server under the direction of the Northwestern State University's Academic Computing Office (TopClass at NSU, 1998). Eight other online courses were using this software for the spring of 1998 semester. It reveals its inner workings in the form of database contents which can be accessed through a Web browser which is exactly what the I1N an 01N students did. Each student, regardles of physical location, could log onto the conference through an Internet browser. TopClass is password protected and only members of the class had access to the information it holds.

The third section of the course used an older package called WebBoard (WebBoard, 1996). Its developer is Duke Engineering and is marketed by O'Reilly Software. It runs on Windows NT and 95 platforms. WebBoard was loaded on the College of Education Educational Technology server and ran through its Learn Net website (Learn Net, 1998). WebBoard is software for intranet- or Internet-connected Windows 95 or NT computers that allow Web site visitors (in this study, students in the ETEC 5710 course) to interact via threaded discussion forums and/or real-time chat, using regular Web browsers such as Internet Explorer or Netscape.

Findings and Conclusions

To reach the desired goal of discovering what incidental learning occurred in this course, the researcher asked questions and watched for behavior that addressed multiple issues both at the beginning of the course and the end of the semester. At the beginning, issues included reasons for taking the course, first thoughts and initial expectations of the course, the skills the student felt were necessary to complete the course, and the possible differences between skills needed for an online course and a traditional course. Other early-in-the-semester issues were time expectations, specific learning outcomes the student wanted to acquire in the course, and the students' main concern about the course. At the end of the course, issues of importance to the students had been modified. Topics of discussion and concern included self-ranking for success, skills that helped the student achieve success, the main skill learned or gained during the semester, and skills that differed from the traditional courses. The researcher also asked questions concerning the type of "poster" each student was when working with the conferencing software. Students listed not what they wanted to learn but what they felt they had learned in the class. They also compared their initial thoughts and expectations of the course with what they actually encountered throughout the semester. Students were asked whether the course took more or less time than they expected and to describe their workplace. The thoughts of the students towards future online course work for themselves and towards the future of online learning in general were gathered.

The researcher found that two types of incidental learning occurred. The first developed from the students' learning to use the technology itself. Accessing the Internet, learning to develop Internet search skills, working within an online course, and using the conferencing software fit in both the primary and incidental learning categories. While part of these activities can be classified as primary learning, the manuevering and mechanical operation of the technology was not the prime objective of the course. Students learned how to conquer the conferencing software, how to post, how to use search engines and how to phrase words for a search frequently. Some learned the effective and proper use of bookmarking when working within the Internet environment. Others mastered word processing skills. Students learned how to cut and paste from one document to another, to save work frequently, and to use the spellchecker. This learning occurred as the student worked to acquire the primary learning to meet the goals and objectives of the course.

The researcher defines incidental learning as unplanned and unanticipated learning outcomes not identified as part of the formal curriculum that students obtain while participating in the class. If the strict definition is followed the outcomes in this first group of learning outcomes can be classified as incidental learning. The course is basically concerned with learning how to integrate technology into the classroom, not with learning how to master the technology.

Other learning outcomes more easily and obviously fit into the incidental learning classification. Students learned to learn in an isolated situation and learned more patience. Other personal skills were acquired by students. Students learned to procrastinate less; they grew in self-confidence and self-worth. An increase in self-discipline is mentioned frequently. The ability to adapt to non-traditional learning environments is an important learning outcome. Other task-oriented skills were learned that were not required by the syllabus for successful completion of the course. One student taught himself to use an authoring program because he felt it should be included in the syllabus, but it was not.

The researcher found that the strengthening of self-discipline and self-confidence was a direct result of these teachers taking and being successful in an online course. The value of being successful in a graduate level online course was stressed by several experienced teachers. They are often looking for something new and interesting. Online course work interested them and provided a challenge that could be achieved. Students in the online course exhibited an increase in self-knowledge, the development of self-confidence, and the belief that more new goals can be set and successfully accomplished. Their technological skills and understanding of their present and future world increased.

The issue of time management was important. Students frequently discussed personal growth in this area as the semester concluded. While they found the process stressful at times, the improvements made in the more appropriate management of time were a positive force.

The researcher supports Mealman's (1993) assertion that students do not differentiate between incidental and intentional learning. Students do not make distinctions that would support the categorizing of learning outcomes into primary and incidental by the instructor or the institution. The two types of learning outcomes play equally important roles in the students' overall experience.

Eight research questions guided the examination of learning in this asynchronous course. The responses to these questions were addressed as related to the findings of the study. The nature of the incidental learning has been previously reported. Novices rated themselves lower in terms of success than did experienced computer and Internet users. More novices failed to complete the course in the specified time allotted and had

to finish the coursework after an "incomplete" was given, but all did complete the course.Incidental learning outcomes were apparent for participants who were taking the ETEC 5710 course to foster their knowledge about technology, participants who were completing master's and specialist's degrees, and those who were obtaining additional certification or hours towards their master's plus thirty classification. The degree program of the student appeared to make no impact on the amount or type of incidental learning acquired by the participant.

Students were evenly divided over the issue of actual time needed versus time they expected to need for successful completion of the course. Each group was proportionately divided between novices and experienced computer and Internet users. The researcher found no relationship between the amount of time expected or the amount of time taken by the participants and the amount and type of incidental learning that occurred within the course during the semester. The researcher found no evidence of a relationship between the frequency of conferencing postings and the amount and type of incidental learning acquired.

Finding a connection between motivation to participate in this online course and incidental learning proved difficult. Basically, all the students did well and acquired significant primary and incidental learning outcomes. All students were motivated by something; some were following a degree plan, some were impressed by the idea that they did not have to drive to the main campus, some were pleased the course tuition was being paid for through a grant, some just like to learn new material. The researcher found that motivating education graduate students was usually not a problem. Students who enrolled in this course were motivated, and they all learned. Some had problems with time allocation and some had mechanical/technical problems, but all persevered and completed the course satisfactorily. The researcher found that those who were motivated by an enthusiasm to learn more about technology ranked themselves as more successful in the course. They were able to circumvent the inevitable crises that technology often creates during the semester. Many of these participants expressed a strong increase in self-confidence upon completion of the course.

Participants reported an increased ability to manage time, a belief that more online coursework was possible and probable, a higher level of self-confidence and patience, and more effective self-discipline. Research, writing, and word processing skills improved. The students' ability to use the Internet for online course work and researching improved. The few who did not rate themselves as successful learned more about their own learning styles and personality traits. Several said that a different type of online course might be more effective in acquiring primary and incidental learning outcomes.

Discussion and Significance of the Study

When this study began, I expected to find multiple examples of incidental learning occurring among all students in the graduate online class including development of Internet search skills, improvement of typing skills, and strengthening of research skills. I expected that these unintended consequences of a learning situtation would be at least as important to the learner as the original objectives specified in the course syllabus. These expectations proved to be true, but I also learned that incidental learning is a complex issue, and its effects were important to the overall learning outcomes which were occurring within the course. An additional, unforseen set of unexpected learning outcomes surfaced. Incidental learning affected the development and strengthening of several major personal attributes of many of the students. Students repeatedly reported an improvement in self-confidence and self-determination. Students who were at first intimidated by the prospect of a technology-based, online graduate-level class were amazed and thrilled that they had not only survived but usually had flourished. Many were fueled by a basic desire to learn something new. When they accomplished this goal, they felt good about themselves and continued to learn more about integration of technology into the classroom. Students who began with basic technology skills and an expectation to succeed did well and accomplished their goals. Students reported improvements in time management and organizational skills. I saw and heard excitement and enthusiasm in the voices, writings, and actions of adults. Such motivation is rare in a traditional classroom setting. This acquisition of enthusiasm through the attainment of learning outcomes fostered by incidental learning may be a key to successful lifelong learning for our educators. Perhaps the availability of online courses for educators may be a way to keep excitement in learning for all students.

The results of the study will be used to gain a more comprehensive understanding of the learning that occurs in a university-level graduate online course, to identify such experiences, and to related them to activities occurring within the framework of a particular course. The significance of this study goes beyond a particular online course. The data gathered, analyzed, and summarized in this study can be used to better understand the nature of online learning in general. Understanding the nature of the learning that is occurring in online courses

will allow higher education faculty and administrators to design courses and programs that produce higher student learning outcomes.

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