THE FORMAT-SHIFTING DILEMMA IN DISTANCE EDUCATION

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Since networked learning came into being, educators have been exploring how to improve its effectiveness for higher education. Issues about interactivity and quality distance education arise. Most current studies have explored and examined the importance and the common phenomenon of the interactivity issue in the distance education paradigm. Few studies have explored the deeper insight of the hidden problems caused by the format shifting effect. This study probed the hidden issues through unfolding a case of an online distance learning class. With the use of qualitative methods, this study explored how undergraduate students coped with the learning format shifting issues in their first distance-delivered class, HES 3002, Human Environmental Science, in a large midwestern university. For this class under study, Lotus LearningSpace was the online network groupware used to distribute instruction and support communication. Interviews, observation, and document review were adopted to collect data, and the data analysis was conducted qualitatively. At the end of the study, the findings indicated that the "learning format shifting" is a period of dilemma that occurs during the early period for the new learners during their first distance class. Overlooking this issue would result in problems that could affect distance instructional efficiency. The creation of communication, understanding, and collaboration on both sides (the instructor and the learners), and the development of strategies and solutions to the unseen format shifting problems could help the learners survive their first distance course and allow the instructor to anticipate problems and help the new virtual students step out of the "threshold" shadow.

INTRODUCTION

Information technology has revolutionized education in terms of how we organize, structure, and empower our daily educational practice (Gregorian, Hawkins, & Taylor, 1992). Since networked communication came into being, it has affected the way we teach and learn. It provides us with an opportunity to structure a new learning format or a new learning paradigm (Bauder, 2001; Pressley & McCormick, 1995)—distance learning—in which learning takes place in an electronically networked environment. It makes us rethink and restructure the mechanism of our instruction to adapt to the "tech-faddy" class (Moore, 1990; Liu, 1996; Muirhead, 1999). Vygotsky indicated that learning is a social process and

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the scaffolding is essential to the young novice learners to learn from more mature peers (Vygotsky, 1962 & 1978). The social dimension of group learning has been emphasized by Lave and Wenger in terms of legitimate peripheral participation in communities of practice (Lave & Wenger, 1991). The learners, such as apprentices, must first be sponsored before they can gain legitimate access to participation in the community's productive activities: learners move from legitimate peripheral participation to centrality. Wegerif's study on asynchronous learning network found that there is a "threshold" before the learners when they try to get into the networked learning community. This threshold is the first barrier for the learners to gain membership in to the community (Wegerif, 1998). The networked distance learning community fosters e-learning socialization, interactivity, and collaboration. The benefits of technology have inspired millions of educators and learners to adopt it to fulfill their educational goals. Yet, how distance-learning participants structure a virtual class, how effective the new learning paradigm is, and how participants reconceptualize their learning experience in the new learning format remain unknown variables (Bauder, 2001; Liu, 1996; Muirhead, 1999). A successful distance class needs to solve a number of new problems that have not been seen before. Yet, most of the current research on the issue of quality distance education revolves around the importance, the phenomenon, attitude, and the types of interactivity (Moore & Thompson, 1990; Moore, 1993; McIsaac, Blocher, Mahe, & Vrasidas, 1999; Mahesh & McIsaac, 1999; Offir & Lev, 1999; Northrup, 2001). How to increase the quality of interactivity has received little attention. Overlooking these problems could negatively affect distance instructional efficiency. The research described in this article explored this issue through a qualitative case study in the class HES 3002, a human environmental science course, in a large midwestern university. It tapped into a deep understanding of how to increase the effectiveness of the undergraduate distance learning class and uncover unperceived issues.

RESEARCH METHOD

Basically, there are two major research paradigms, quantitative and qualitative (Creswell, 1994; Gay & Airasian, 1996). The quantitative research paradigm, which has often been referred to as "traditional" or "scientific," (Kim, 1989, p. 1) is based on numbers to interpret a phenomenon under study. It rests its evidence on the logic of mathematics, the principle of numbers, and the methods of statistical analysis, and resorts to the statistical variables for interpretation (Meyer, 1988), whereas the qualitative paradigm tries to preserve the form and essence of human behavior and to analyze its qualities, rather than subject it to mathematical or other transformations (Lindlof, 1995). Yin (1994) noted, "Qualitative research methods are distinguished from quantitative methods in that they do not rest their evidence on the logic of mathematics, the principle of numbers, or the methods of statistical analysis" (Anderson & Meyer, 1988, p. 247). Most qualitative studies reflect some sort of phenomenological perspective (Glesne, 1999). They are conducive to describing or answering questions about particular events or contexts and the perspectives of a participant group toward events, beliefs, or practices. It is useful for exploration and understanding of a group or phenomenon, and these understandings often result in new findings or insights (Gay & Airasian, 1996).

A phenomenological approach considers human beings the center and determinants of world events. Studies solely depending on numbers may be unreliable in interpreting human feelings, emotions, perceptions, and attitudes, and these studies may not be fully representative of the participants involved.

Qualitative research emphasizes the interaction of human participants. It is a more humanistic approach to deal with data and its

outcomes can more accurately reflect human perspectives.

A qualitative case study is particularistic because it focuses on a particular, specific situation, event, or phenomenon. A case study is descriptive and provides insight into the phenomenon under study (Merriam, 1988). Guba and Lincoln stated that the purpose of a case study is "to reveal the properties of the class to which the instance being studied belongs" (Guba & Lincoln, 1981, p. 371). Shaw described the case study as "interpretation in context" (Shaw, 1978, p. 13). Cozby argued, "Case studies are valuable in informing us of conditions that are rare or unusual and thus not easily studied in any other manner. Insights gained through the case study may also lead to the development of hypotheses that can be tested using other methods" (Cozby, 1989, p. 119). Becker defines the purpose of a case study as twofold: "to arrive at a comprehensive understanding of the groups under study" and "to develop general theoretical statements about regularities in social structure and process" (Becker, 1968, p. 233). Merriam states that "one selects a case study approach because of an interest in understanding the phenomenon in a holistic manner" (Merriam, 1988, p. 153). LearningSpace assisted learning is a new phenomenon in the distance education arena. People need to know about it, understand it, and explore its capabilities. A case study is appropriate for this research.

The participants in this study were students in the HES 3002 class (Contemporary Issues in Human Environment Science) in the Department of Human Environment Science. The instructor had rich experience in integrating LearningSpace into instructional communication. Her class has a diversified student population with different backgrounds and perspectives, which can help enrich the data resources of this study. There were fifty student participants, one teacher participant from this course, and three LearningSpace-related network administrators from the Office of Computer Information Services (CIS) for this study. There were 20 interviewees from the 50 students in class, one faculty interviewee, and three interviewees from the Learning-Space-related network administrators. The student interviewees were selected from the "focused group" (Morgan, 1997, p. 7) or "targeted population," that is, "the interviewees should represent the range of points of view" (Rubin & Rubin, 1995, p. 66). The student interviewees were chosen according to level of their representation in the area of cultural background, technology background, experience background, and their interest in the LearningSpace assisted educational format. Because only two of the interviewees were male, the gender difference was not unique in this research. Therefore, in the later data presentation, the interviewees' gender will not be considered. There were twenty interviewees from the student group, and the teacher of this course and all three network administrators were interviewed. So, there were 24 interviews altogether. There were four follow-up interviews with the students and one with the instructor. At the time of the study, there was no research conducted about LearningSpace, and it was difficult to find comparative research data for the use of LearningSpace in this study.

CONTEXT OF THE STUDY

This study was conducted in a large (22,000 students) midwestern land grant university located in a small city. The university offers degrees at the bachelor's, master's and doctoral levels, representing a rich blend of disciplines and varied professional experiences. The university is heavily supported with technology and began distance education with live videoconferencing in the early 1980s. The research and practices performed here have added to the literature of distance education since then (Moore, 1990). The university computing system provides e-mail and digital communication services for all faculty, staff, and students. Lotus Notes was installed as a collaborative network for the faculty and staff in

1996. Lotus LearningSpace has been incorporated into Lotus Notes for the sake of providing a networked collaboration of students and teachers in different courses since 1998. In the fall semester of 2000, there were 30 courses at this university using LearningSpace as a course collaborative tool. This study was designed to explore the students' views of learning in their first distance learning class. It sought to reveal the students' experience and determine what perspective and attitude they had toward learning in a new paradigm. To achieve this goal, the methodology of the qualitative case study was adopted because of its ability to gain deep insight into the case and explore the human traits related to the events (Glesne, 1999; Merriam, 1988). This HES 3002 class used Internet-based network LearningSpace, which was developed by the IBM Company, as the class communication network. This course was distributed totally online in the fall semester of 2000. Most of the class participants had never met each other. They got to know each other only by communication online in LearningSpace during this class. In this study, there were fifty student participants and one teacher participant from this class. The students in this study were all first-time distance learners. The instructor had three semesters' experience of teaching HES 3002 online. For this study, both interview and online observation over discussion board were the main approaches to collect data. Online survey and review of the downloaded document were also adopted to collect data. Twenty-one of the students, one teacher, and three university LearningSpace network administrators participated in interviews and surveys. There were ten follow-up interviews among the interviewees.

SIGNIFICANCE OF THE STUDY

This study of users' attitude towards using Lotus LearningSpace will provide the designers, administrators, instructors, and learners a better understanding of the effectiveness of

Lotus LearningSpace and how to effectively use this tool to improve the quality of distance learning through networked learning interactivity and the new format of instructional tools. It will serve as feedback to the producers and help them make better decisions on developing, administrating and manipulating internal networks like Lotus LearningSpace for educational purposes, and a feedback to the educators to better understand the Learning-Space-assisted class, and improve their instructional design and methodology for the networked distance class. The findings may engender further study of Intranet-based learning under similar conditions and enrich the social learning implications. In addition, it could precipitate reforming networked technology and technology-based pedagogy.

FINDINGS

The online class adds a different array of pedagogical concepts and practice to instruction. It enriches college learning with options, convenience, and multimedia incentives that stimulate the students' learning interest, curiosity, and motivation (Galusha, 2002). But the first move from a traditional class to a distance class is a challenge. Because all of the students in HES 3002 were first-time distance learners, the format shifting hardship was a significant barrier to the potential success of this class, even though most of them claimed to possess the basic computer word processing and Internet skills.

HES 3002 is a theory-based course. It emphasizes the theoretical foundations of professionalism, relating to the current or hot issues of professional ethics and information management. Two textbooks were used for this class, *Management Challenges for the 21st Century*, by Drucker (1999), and *The Ethics of Excellence*, by Pritchett (1999). The instructor also provided online reading materials and the guest speakers' PowerPoint presentation files for the students to download from Internet. Reading, discussing, and completing written

assignments were the main approaches out-lined in the syllabus for this online class. As the instructor noted,

> Discussion is the most important part of learning activities in this class because the discussion board in LearningSpace could provide a place for the class to communi-cate about the course content, and for the teacher to communicate with students and monitor how students participate in class. It is a way for me to involve students in a meaningful learning.

Every student was required to post four initial questions and sixteen responses to other peo-ple's postings for the whole semester relating to the course content.

As new learners in this class, many students expressed their excitement about trying a dis-tance class. They said, "I am very excited about this class . . . " " . . . I have never taken an Internet course, so I thought it would be fun and interesting for me . . . . It helps me sharpen my computer skills which will come at an advantage later in the real world when I get a job . . . " " . . . it would be easier and time-wise if I took it online instead of going to a class-room two or three times a week . . . . I thought it would be more time effective than a tradi-tional class." " . . . I am hoping to learn some-thing new about Internet, so far, I am." "I choose to take this class online so that I could get an easier grade." The online class aroused students' interest and curiosity which consti-tuted an incentive for them to go online for class. Students also revealed their concerns and expectations about this class, "I see my biggest challenge as getting acclimated to the computer program and feeling comfortable with it. All in all, I'm excited about this new form of technology." " . . . I think my most challenging obstacle in this class will be mak-ing sure I am staying caught up and knowing what is required of me, when it comes, to where I need to find info, and where I need to discuss my thoughts." For new distance learn-ers, there is an effect of "insecurities" by which the learners might feel unsure of their class procedure, ease of activities, and success

in class. This effect could become an intimida-tion that causes low self-confidence (Knapper, 1998). This effect also occurred among the class participants of the HES 3002 class.

The reality of taking part in the first dis-tance class was hardest when the class first started. It created anxiety at the threshold of the course. This uncomfortable period for stu-dents lasted for about six weeks. Students were unfamiliar with the networked learning envi-ronment, the LearningSpace interface, and its unique learning procedures. The first obstacle encountered was logging on to LearningSpace. The class Web site required a password to log on, and the password was long with a slash and spaces in it, different from other network pass-words. This made it difficult for the new users to get into LearningSpace and easy for them to make mistakes. It was a function of the way LearningSpace was designed. Once the stu-dents entered LearningSpace, they had a hard time locating the syllabus and the modules, how to start working on the course work, and on what they had to work. Many students com-plained that LearningSpace was confusing and not user-friendly. For undergraduate students, enrolling for five to six courses in a semester is common. They struggle with a heavy course load. When they became frustrated with using LearningSpace for too long a time, they got impatient and annoyed. This affected their first impression of LearningSpace and the course HES 3002. The skills necessary to use Learn-ingSpace take time to acquire at the start of the semester while students are busy taking a new course. For example, several students com-plained that they could not find the reading articles for assignments in the LearningSpace assignment section. One student revealed her frustration in the discussion board: "Learning-Space is so scattered. There is no clue and hints to prompt you to find what you really want. I spent a lot of time but still cannot find the next assignment." The frustration and confusion at the start of the class caused turmoil among the students. Even many excellent students who could expect an A in traditional classes sus-pected that they could succeed in this distance

class. Jill Galusha (2002) indicated that the teacher support, student support, class alienation and isolation, and lack of experience and training are major factors that could negatively affect the new distance learners' attitude toward the new learning paradigm. Some of the students in this class started to blame their teacher for this discomfort and uncertainty. Other students dropped out, largely because of the "insecurities" and intimidation they encountered during their first period of involvement in the class. The following are the students' expressions of frustration and confusion encountered during the threshold period, posted in the online survey.

- "This class is a sterile and isolated class. What you see is (your) computer and words on it. I doubt I could succeed in this class."
- "I hate it all. The class is dumb, everything is dumb. I almost got to the point where I wanted to throw my computer out (of) the window."
- " . . . I have a lot of trouble finding and accessing articles posted on LearningSpace. I don't know if this is the problem with LearningSpace or the instructor."
- "I feel extreme amount of frustration due to the confusion I experienced. I am also somewhat intimidated. I really have to stay on top of things to keep up (with the class)."
- "It's not hard to check, but I still don't really feel as if I know what to do, how to do, and when to do it. I missed several discussions I posted. I don't know if I'm doing what I ought to do, if I only talk to my (discussion) group and if I get (involved) in other discussion (groups) too?"

These complaints did not mean that students were reluctant to learn. On the contrary, they were eager to learn but got stuck at the threshold to this class due to the technical problems and a lack of familiarity with learn-

ing in a technology-based environment. With these problems in class, how does the teacher handle them? Has she realized the students' needs at this point? The instructor noted that she spent a lot of time giving technical support to the students in the discussion board, in e-mails, through the telephone, and even in her office for those who had classes on campus. She added:

> The students always complain about their teacher when they get uncomfortable with technical problems. They don't want to spend time to explore the new technology on their own. They expect everything to be easier. For example, if a student uploads his or her assignment into LearningSpace, he needs to look at the submission category first, then submit. There are dozens of categories in the assignment category. If the category selection stays on a wrong title, the assignment would not show up in the assignment section, but appears somewhere else. That's why many students complain that they submitted their assignments but could not find them in LearningSpace.

Wood states that, considering the equity of educational opportunity to all, careful consideration must be given to the special needs of students undertaking distance education for the first time. This student group is at high risk of dropping out. So, extra training and technical support need to be developed to help them master the new study survival skills as early as possible (Wood, 1996). Technical support and training for this class were not provided in a timely manner, which increased their frustration and the level of difficulty. This added to the uncertainty of their learning success, leading to ten students out of fifty (20%) dropping this class during the first six weeks. Both technical frustration and intimidation due to the format shifting became insurmountable to students at the threshold of this class. One dropout student told me in the telephone interview,

> It really doesn't mean that I don't like this class. I just didn't feel comfortable to be in a distance class . . . . I am pretty much an A student all the time in school. But I cannot

learn very well in this class. I had to drop this class in the second week and take it again in a traditional class, because I have to keep my good GPA to maintain my scholarship. Without my scholarship, I would have (financial) problems to finish my degree.

Some other students said that they remained in the class, but this did not mean that they were satisfied. They had to take the class for their degree requirement and graduation, and this online class was the only choice that fit their schedule arrangement that semester. Still other students planned to withdraw from the class any time their frustration grew beyond tolerance.

When asked why the technical problems constituted such a big frustration to the students, and how they could help solve them, the school's network manager said,

> LearningSpace is not a user-friendly software package for the beginning users. Its interface is somewhat confusing. Generally, students need one semester to get used to it. I am a technical supporter. When I started to learn about LearningSpace, I spent four whole days on it, but still have many things confusing, to say nothing of the students who are new to LearningSpace and have limited time to learn how to use it.

On the other hand, he noted,

TABLE 1

Summary of Students' Responses to the Distance Learning Format In HES 3002 Class

Related Area	Positive	Negative
Technology	Technology is an incentive for learning, it provides you variety of tools to fulfill your academic accomplishment.	Technically intimidated with LearningSpace network, concerned with their lack of technology background.
Distance learning format	Distance learning class provides learning any time and anywhere, helps mediate the time and space conflicts.	Not in a habit of learning with distance class technology, e-communication, and unable to locate the information in the network environment.
Interaction	Asynchronous interaction is convenient to communicate any time and anywhere. You can check assignments any time you like or during travel.	Not accustomed to the asynchronous interaction. Synchronous interaction is more emotionally, cognitively, and mentally engaging, Immediate responses could generate fast and more effective feedback than asynchronous responses.
LearningSpace	LearningSpace is a convenient network for online learning. You can retrieve any course resources from it and perform any class-related learning activities in this place.	LearningSpace is not user-friendly. It is confusing and intimidating the new users. It is really hard to find things you want for the course preview and class assignment. It is easy to mess up with your work.
The Instructor	The instructor is patient and ready to help students. Her responses to the e-mails and discussion questions could meet my needs.	I don't think the instructor teaches us. Many times I can't see her responses. I got support more from students than from her. She is not responsible for our study online.
Course Content	This course content relates to my major and my life. It's an interesting and useful class.	The content of this class doesn't relate to my major. And it is uninteresting to me, only this course is required for my degree. That's why I have to take it.
Evaluation	This distance class evaluation is fair. We got As or Bs, that's not bad.	This distance learning class evaluation is unfair. There is a lot of work reading, writing, accessing Internet LearningSpace and discussing, but you see less teacher's instruction and support. You work hard but are still unable to get 90% points for a grade of A.

Very few of the students contacted the school Computer Information Technology Service (CIS) for support by e-mail or phone, even though the class instructor gave them the CIS's phone number. The students like to contact their teacher directly, or solve problems among classmates. We could not provide very much support because we don't know what support they need.

One student commented that, in the traditional classroom, any problems were solved face-to-face within class, so they tended to stay on the old track of communicating instead of trying to find solutions out of class. If they had difficulty solving the problems, they just left them unsolved, and bypassed those technology features. Since the learning activities were designed based on many technology features, if students avoided using those features, learning would definitely be affected. For example, submitting an assignment into the wrong place would make their assignment unavailable for grading by the instructor and sharing by peers. When the students went into this class, they didn't realize the importance of its technical side and the instructor overlooked giving them timely directions for mastering the basic technology to succeed in this class, so learning difficulties escalated at this phase. There is a tendency for barriers to distance education to hinder learners from succeeding (Galusha, 2002; Muirhead, 1999). However, when those barriers on the students' side are unperceived, and the teacher performs regular instruction and evaluation without knowing it, the potential problems could happen any time.

It seems that a group of the persistent participants in class played a vital role as a model to break up the iceberg. They are actively and diligently showing up in the discussion board, exploring, informing, asking, and supporting one another to adjust to this challenging new online environment to survive the class. Their discussions brought about life and support to this "sterile and isolated class." Peer support tends to be more reliable and accessible than the instructor's support (Pressley, & McCormick, 1995; Bull, & Standsberry, 1997). The

students' postings of supporting each other are such as:

Question by Ted:

OK, I sent a comment but I am not sure if it was sent. I have no clue as to what is going on. Where is the quiz that we are supposed to take? If someone knows what is going on, please let me know. Thanks. Ted (Online data 8/23/00)

Response by Alice:

Ted, if you go to Discussion Board in CourseRoom, click the Discussion icon, click the discussion topic you commented about, your comment will pop out. Then click your own discussion topic, you can see your own discussion comment now. Try and see if it works for you. Alice (Online data 8/24/00)

Question by Kim:

Could someone possibly tell me how to attach a file (to discussion board)? I wrote my entire assignment in Word and then printed it out and retyped it into the box so I could submit it for grading. I would just really like to know how to make this easier and be able to attach it. Thanks. Kim (Online data 9/23/00)

Response by Leonard:

Kim, when you finish your document, save it onto your disk or Drive C. Secondly, you hit the "Browser" button below, go into the drive where you saved the document and then open the document (file) . . . (W)hen you hit the open button, it will put the file into the File Attachment slot. then just (click) "Save & Close." You can check it by clicking on the (Attachment) icon in your assignment document (usually below the file attachment section) to see if you can pull it back up. Hope this helps! Leonard (Online data 9/2300)

Question by Hellen:

Could anybody tell me when is our Quiz One due? I just forget it. Thanks. Hellen (Online data 9/25/00)

Response by Kim:

> It is due next week. You can find it in Model
> III in Profile on the beginning page. You
> can't miss it. Kim (Online data 9/26/00)

Response by Hellen:

> Thank you, Kim. I found it. Hellen (Online
> data 9/27/00)

"Up with each other" instead of "competing with each other" characterized the expectations of the students of this class. The spontaneous peer support was most effective among students when they collaborated on the specific tasks that they encountered during the learning process (Johnson & Johnson, 1975), and the virtual discussion could generate "just-in-time help" that solves the students' immediate problems (Bull, et al., 1997). This outcome produced a positive impact on the students that could be seen and felt. Students placed a high value on peer support. As one student said in an interview,

> I get more support from classmates than
> from the teacher . . . (A)t the beginning of
> the class, I was confused. I didn't know
> what to do. I could not logon (to the Learn-
> ingSpace), and I could not find things in
> LearningSpace. My files could not be sub-
> mitted (uploaded) to LearningSpace. I have
> difficulty to find assignment and grades.
> When I have problems, I post them. I get
> technical support from my classmates.
> Sometimes I open the discussion board to
> see other people's discussion about techni-
> cal issues. Then I got the answer. That's the
> way I usually solve my problems.

After about eight weeks' experiences, the students became more familiar with Learning-Space, and participation increased. Many assignments were posted in LearningSpace, and many opinions about the readings were posted on the discussion board. Many technical solutions were posted on the discussion board for the whole class. The students' participation became more active. But how to really participate in a virtual class was still unclear to the students. They did not know the regulations of the class, how to learn online, how to discuss, and how to keep up with the class schedule and the instructor's expectation. This issue directly related to how successful this class could be. The instructor noted that LearningSpace had many features to support learning communication. For example, the discussion board has pages and pages of student discussion postings that could be accessed by the students of the class. Many students posted good discussions but could not arouse the interest of the students. Few of the students clicked on them to read, because the discussion titles did not tell the readers what that discussion was exactly about. The author of the discussions did not pay enough attention to the wording of the titles. As many readers browsed through the discussions just by looking at the titles, they only clicked on the titles that interested them. One discussion concerned sexual harassment in the workplace. This is an interesting topic, but very few students opened it to read, because it was placed under the title of "My Reading Assignment Is Finished," which had no relationship to this discussion topic. For those students, online discussion skills needed to be refined. Different formats of communication need different ways to realize the goal. In addition, they could not overlook developing skills to manipulate an unfriendly network interface like LearningSpace.

The traditional learning habit was another factor that interfered with the students' acceptance of the distance learning class (Carr, Fullerton, Severino, & McHugh, 1996). Many students reported that they delayed their assignments and tests not because they did not want to do them, but because they forgot they even had a course online. They could remember to go to campus every day, but were not in the habit of opening LearningSpace from computer to participate in an online class. They would keep the regular school schedule—going to the classroom, listening to the teacher, and working with their classmates face-to-face, communicating physically, visually, facially, and vocally, but once a class is iso-

lated in a distant location, "out of sight becomes out of mind." To many students, only a course taught in a classroom was considered a "formal class." Their self-consciousness of adjusting to changes is weak. So neglecting assignments, readings, projects, and quizzes is common among the students in HES 3002. Other students reported that they thought taking a class online would enable them to get an easier grade, so they felt that regular effort for a class was not necessary. This misunderstanding negatively influenced the students' learning behavior and attitude toward this class.

To organize this online class more effectively, the instructor divided the class into 5 teams, 4-5 people in a team. She posted questions and discussion topics for each team to work on. Students were required to work with their team members to finish these joint assignments and post the finished assignments in LearningSpace so that the classmates in other teams could see it and the teacher could grade it. This online activity increased the students' learning and cooperation with their team members. As one student said,

> I like to read the discussions in my class, and I like to post responses to the students who have the same opinion with me. Through reading the discussion board, I found that there are many ways of managing working people, and I see several classmates have the same opinion with me.

Another student noted that:

> I didn't [know] that reading in the discussion board is so beneficial. Through reading those discussions, I share the life experiences of others that enrich my own understanding of the readings in the textbook.

But not all students were so mentally engaged in working in teams. There were 18 students (45% of the total) who never showed up in the discussion board. In interviews, several students said that they forgot they even had a class online, because, on one hand, their course load was too heavy, and they could only remember the classes that they were physically attending in the school. They could not remember their virtual class in LearningSpace. On the other hand, a habit of accessing learning network online had not yet been developed. They were not efficient enough to keep up with the virtual class. Those students had many assignments posted late, and many even missed the mid-term test. The instructor had to put an announcement in the discussion board to remind those students of their missed work, and give them some grace period to finish it. Of the lack of participation of some students, she said:

> Some students never show up in discussion. They don't know 20% of the grade is tied up to the discussion. Some don't complete their assignments. I monitor the class and see it. I remind them of their missing work. But if they really don't want to finish their work, they will lose their grades. If they don't participate in class, they cannot pass. When they realize this, it will be too late.

Even though the instructor insisted on reinforcing the discipline, participation in LearningSpace did not change. The active participators were almost always the same people, and the sluggish participators were still sluggish. When asked about the class, they complained and revealed their dissatisfaction with the teacher and the class format:

- "I don't think she (the instructor) teaches us. She just puts things on the Internet. And that's all."
- "I got more help from students than from teacher."
- "I am a reading learner, but read from the book, not from the computer. The computer thing is just not for me."
- "I really don't like this class. I learned nothing from it. It's just a waste of my time and money. I have to take it again (in a traditional class). If I have a choice, I would choose traditional class instead of distance class. I would never take it again."

In the interview and survey, the students revealed more facets of their discomfort toward learning in this class. It seemed that they could well recognize a teacher's effort in a traditional classroom and find the right way to learn for themselves, because it was traditional and familiar. But, once the class was shifted to cyberspace, they could not see the teacher's face and effort, and could not grasp what was the right way for a teacher to teach, and what was the right way for a student to learn. They felt at risk or "insecure." They became weak, vulnerable, and felt helpless. Of the class, 20% (10 students) dropped out, 16% (8 students) quit discussion, and 20% (10 students) seldom showed up in the discussion board, which was a basic requirement for this class. Only 44% (22 students) were regular, active participants. Once the class lost harmony, agreement, and rapport among the participants, the relationship and attitudes toward each other were undermined or ruptured, and disconnection and misunderstanding was generated, and conflicts occurred.

The remaining 40 students persisted in the class through the end of the semester. Among these students, their attitude concerning this class varied: "I will take a distance class again because I have had this experience." "I like the distance class. It fits into my schedule and saves me a lot of driving." "The distance class is better than the traditional one because I understand better by reading on my own." Others said, "I would not take distance class unless there is no other choice. I prefer traditional class and face-to-face interaction." Still others voiced, "I had a bad experience in this class. I would never take an online class again. I have been intimidated and frustrated by the computers."

The instructor's response to the students was unhappy. She said that she spent more time teaching an online class than the traditional class she was teaching at the same time: responding, preparing class, and delivering instruction online. Even when she traveled, she took a laptop with her to connect to the hotel's Internet and checked up the online class' discussion, assignment, and reply to the students' questions in the discussion board or through e-mail. She said, "Last week, the students conflicted with me over the grading and posted things in the discussion against me. That makes me upset . . . . They don't want to work hard in this class. They don't like me to push them to work . . . . I already told them if they don't keep the rules and work hard, their grades would be affected."

The instructor taught another HES 3002 class in traditional (residence) format. She said that she taught them the same content, and gave them the same tests, same assignments, same paper, same assessment, and everything except the way she gave the test. The traditional class students took the test in the classroom, but the distance class students could go to the local test center, local libraries, or testing agencies to take the test. Other things, such as course content, textbook and assignments, were the same.. But, in reality, the two classes were not the same, because the formats were different, which could lead to many differences in instruction, communication, organization, and evaluation. On the student side, distance learning means a change related to learning style, learning habit, communication preference, course load, technology experiences, technology availability, and cultural background (Bauder, 2001). While the instructor regarded the two classes as the same (except the test format), many unperceived problems occurred and affected effectiveness. Also, problems were unrecognized and undetected until November 16, when a student, posted a discussion in LearningSpace criticizing the class, which led to a conflict between the teacher and the students.

Discussion Title: This Class

> OK, this may be really mean to say, but does anyone feel like they are working their butt off in this class and still making crappy grades? I have worked my butt off on every single assignment and have made 13/15 or 9/10 on my assignments. I have an 88%. I'm sorry, but I'm not going to make a B in

this class because I worked my butt off . . . . I like this class, but some of this stuff is absolutely ridiculous. I write my essays the best that I can, I make discussions, and I respond to them probably as much as you who are reading this do. I do my fair share of work and put in all the effort, but I don't feel like getting a B in this class. Is it justifiable for the amount of work that we have to do for a 2 credit hours (class)? (Online Data, 11/16/00)

This posting worked like a fuse that led to an eruption of argument about the class. Seven student postings followed the initial posting. They not only complained about the evaluation in the class, but also complained about the course load and the teacher's effort for the students. They vented their dissatisfaction and anger upon this class, but actually upon their instructor, who was embarrassed. She tried her best to calm the students in this virtual learning space, and expressed that she would prefer an individual talk to the students who were dissatisfied with their grades or other aspects of the course. However, no student who posted negative comments about the instructor came individually to her to talk about the concerns. This conflict lasted for one week in Discussion Board, then gradually ceased, but the mood of the learners and the uncomfortable experience became an internal trauma for both the students and the instructor. The instructor said that she would rethink many things, like her grading rubrics, course load, organization of the class, and the problems in this class, but her mood remained on the "upset" that the conflict imposed on her.

The discomfort in a totally online class in which the students are all new online learners is common in distance education (Bauder, 2001; Galusha, 2002). But the conflict and the discomfort lessened gradually after a period of frustration and adjustment. Those who passed the most difficult period could begin to see the benefit of LearningSpace and the class. The active participants were those who persisted in learning new things, stayed on with the class, and tried to find ways to complete all the assignments. The challenge was not only in the

cognitive load of learning the course content, but also in learning how to use the network tool, LearningSpace, and how to interact to learn in an asynchronous paradigm. Effective use of asynchronous tools requires a student to check the information regularly and interact actively (Bull, et al., 1997; Muirhead, 1999). Many students began to realize this and tried to develop a new learning habit to fit the distance class learning style. The sense of the online class started to take root in their mind and change their behavior. More discussions and assignments were then posted on time, focusing on the course content of professionalism. Even though it took almost half the semester for a new distance learner to shift from a traditional format to the distance-learning format, where there was a will, there was a way. As one students said in the interview,

During the first few weeks, I had an extreme amount of frustration. When I posted technical questions in discussion for [the instructor], she gave me responses, and other students also replied to my questions. That helped me a lot. I feel much more comfortable in using LearningSpace now, and I know where to find the assignments, reading articles, and PowerPoint presentations in LearningSpace. I log on to LearningSpace regularly, and try to finish all the assignments before the due date. I found that LearningSpace has a lot of features that can be used for my class, such as discussion, teamwork, attachment, PowerPoint, and multimedia presentation in Media Center. I really enjoy it now. I read them each day and reply as much as what interests me. I think I can learn the same amount (of knowledge in this distance class) as in a traditional class . . . . I am not afraid of it. If there is a need next semester, I would like to take a distance class again.

CONCLUSION

The format-shifting dilemma was a critical issue in the HES 3002 class, in which all students were taking a distance-delivered course for the first time. It happened during the threshold period and challenged the students

and the teacher in this class. The students were vulnerable at this time. They could be victimized by this dilemma if they failed to perform a successful learning format transition from the traditional learning paradigm to the distance-learning paradigm. They could prove themselves virtual learning heroes if they could overcome the difficulties and successfully pass this learning transition. This frustration exists on both the students' side and the instructor's side.

On the Students' Side

During the threshold period, students had the most difficulties and frustration. There was resistance to the new learning format. When the students were switching to the distance learning environment, they were often confused by their own old traditional learning style and caused problems such as forgetting the online class, a sense that the class was sterile and they were isolated, expecting a reminder of the assignment (typical in a face-to-face setting), an inability to contact the participants through LearningSpace, and waiting for the instructor's prompt instead of finding resources on the Internet by themselves. They were lingering at the "threshold" and switching back and forth between the traditional format and the electronic format. They were unfamiliar with the new e-learning environment, and technically uncomfortable and frustrated, as LearningSpace is not a perfect group-learning network. Many students gave up and withdrew from the class. At this time, many students felt vulnerable, intimidated, unsure of success, and expected help and directions. Some students reported that they did not know the rules regarding how to learn, what to do and when to do in this class at the start. They expected models that they could follow. They needed a warm-up and more training support to start this class. Learning habit change also brought about some pitfalls for them.

The other problem is that the students complained that this class required more work than a regular two credit hour class. They had to read, write, and discuss a lot on their own. The students did not realize that when they took this class online, the class shifted more responsibility to the students. In the traditional class, it is the teacher who prepares the class, finds the resources, reads them, assimilates them, and teaches the students. In the distance learning class, it is the students' responsibility to prepare for the class, find the resources, read them, assimilate them and discuss online with the classmates or the teacher. The students were automatically using prior experience in the classroom in the distance learning class. The students, as first-time distance learners, were not prepared for this format. They judged this class according to their experience in the traditional class. At this time, they could see more flaws than benefits of the distance-delivered class. They needed to construct their first experience and new learning style to understand the new learning format. They needed to experience stumbles and pitfalls in finding ways to succeed. But once the students became familiar with the new format, their intimidation gradually lessened. Some students who expressed frustration at the start and changed their attitude after the threshold period. The students in this class were different from the experienced distance-learning students, and also different from the students of HES 3002 in the traditional classroom during the same semester.

On the Teacher's Side

A distance educator might be confused by his or her own dual format experience, perhaps making unwise decisions for the distance-delivered class when switching between the two formats. The instructor in this study taught the HES 3002 class online and, at the same time, another section in the traditional classroom. She thought that her two HES 3002 classes were the same in content, textbook, pace, modules and everything except the test (the traditional class takes test in class, while the online class takes it online), so the course

load is the same. She overlooked the online students' extra learning load caused by format shifting. When students encountered problems and simmered with dissatisfaction, she did not perceive the problems but blamed that the students, who didn't want to work hard until a conflict between the teacher and her students broke out.

In teaching unseen students, the strategy to identify the unseen problem is essential to the improvement of the quality of distance interaction and instruction. The instructor needs to build rapport and trust with the learners by interacting distantly, and make care, love, and understanding felt by all the participants. As a Chinese proverb says, "A good army commander who sits in his headquarter knows what is happening far away." The teacher needs to endeavor in predicting, anticipating, probing, exploring, soliciting, gathering, evaluating and synthesizing regarding the learners' varying needs so as to make decisions that are acceptable to the learners. The instructor must consider what kind of computers they were using, what environment they are in for learning, what family loads are with them, and what kind of backgrounds they bring with them. These factors all directly or indirectly influence the distance learner. On the other hand, the teacher must be skillful to manipulate, motivate, organize, discipline, and construct a learning atmosphere remotely for the learners. For example, it is common in the traditional classroom that when a teacher finds that the students are not "on track," he or she will ask, "Are you with me, students?" But in a distance class, how can a teacher perceive the disconnections in the virtual class and remotely manipulate resolutions to the problem? If not, can he or she hear from the students, "Are you with us, teacher?"

If a teacher chooses a distance-delivered class, thinking it is an easy class to teach, and thinks that students are automatically following the lesson plan as posted online, with little awareness of the problems caused by the format shifting effect, the disconnections might already happened.

When a distance class starts, the students often do not realize that there is a new challenge. They need to give up some of their old learning habits, such as waiting for direct responses from the instructor, listening to the instructor's guidance, expecting to listen to the voice of the classmates, and exchanging notes among peers. The students need to shift approaches and look for all the information by logging on to the network to find the answers and participate in class. They could endure the pressure in a physical classroom, but are not used to "a sterile and isolated" setting. With so many changes, there is a transitional period. During this period, students experience challenge and have to cope with the changed environment, frustrations, and conflicts. They have a higher risk of being psychologically intimidated and dropping out. Many instructors as well as students are not sufficiently aware of this format shifting problem. It is critical for instructors to prepare the learners for the new paradigm. When designing the difficulty level or course load of a distance course, the hardship imposed by format shifting should be considered. Overlooking this aspect may cause potential turmoil and frustration, or inappropriate assessment of the students' achievement.

Table 2 details possible overlooked format shifting problems in this case under study.

While the HES 3002 distance class was regarded as an educational innovation, the critical issue of the format-shifting dilemma left much to think about. It is the critical factor relating to the quality of the distance class, in which most of the learners were new to the distance-learning format. Both the students and the teacher need to be aware of the changed learning format. A successful transition to the new format could ensure the success of the class. Failure to give the close attention to the shift could result in misunderstandings, conflicts, dropouts, and a negative attitude toward distance class. The following are some critical issues from this case.

TABLE 2

The Possible Unperceived Challenging Problems During Format Shifting in HES 3002

Misconception	*Actuality*
The needs of the two classes in two formats are the same.	The distance class needs more time, more technical support, and a format change tutorial to build a new learning style. It needs prompts and reminders to guide students into active participation in the new setting.
The course content of the two classes is the same, so everything for the two classes is the same.	The format difference in two classes is not realized, which would conceal the problems relating to the cognitive load, course load, learning style, comfort of learning and the outcome evaluation.
The schedule is the same between the two classes, so everything can come out the same.	The distance students might be reluctant to log on to the class network. They might even forget that they have a distance class online and leave assignment behind. They need a flexible schedule and disciplinary measures to organize their activities.
The instruction between the two classes is the same.	The distance class lacked face-to-face interaction, and did not have the benefit of facial expression, tone, mood, body expression, and direct influence from the teacher and classmates. Motivation in the asynchronous class is a challenging issue.
The course load is the same for the two formats of HES 3002 classes.	The format shifting effect generates more mental load and workload on the distance students than the students in the traditional class.
The distance class pace is the same as the traditional class.	Not necessarily, because the distance students move to a new learning environment. They need to learn more technology before they can ever start to learn the course content. They have to learn how to communicate online, and how to make the network features work for their course work. A transitional period to fulfill this format transformation must be considered. Dumping assignments of the regular schedule upon the students without thinking of their extra load would cause aversion to the class.
What I announce online is what students read and accept.	Some students might not have received or read your message. Even though they read it, they may not accept it. Some students are not in the habit of accessing the online message box on a daily basis until they are trained or have developed a habit of doing that. Instructors may be unaware of this initially, as they do not have immediate feedback, as with face-to-face interaction.
Assessment scale is the same in the two classes of different formats.	In the traditional class, assessment is under direct monitor and control; in the distance class, assessment is conducted remotely, by projects, in online database, or by open tests. The test content and rubrics might be unclear to the learners. Misunderstanding about the test policy and content could result in conflict between the teacher and students, or may not reflect the students' real level of knowledge and ability. The test schedule can be flexible. But plagiarism control needs to be considered. Portfolio evaluation and long-term observation may be effective in overcoming this problem.
An A student in the traditional class is also an A student in the distance class.	An A student in the traditional class may not succeed in a distance class without an appropriate transition from traditional learning format into the distance learning format.
The students are definitely willing to participate in class activities according to what I required in the syllabus posted online, such as turning in assignments performing discussions, mutual support online and taking the tests.	The teacher may not realize if the distant students react to the teacher's requirement or not. The students' motivation and habit to learn, enthusiasm and ability to accommodate to the new class vary. The students need the teacher's more prompt reminder and greater elicitation efforts to get involved in class activities.

The Instructor's Role

In major contrast to other studies that rede-fine a distance teacher's role as a learning facilitator, organizer, and information resource guide (Moore, 1989; Bull, et. al., 1997; Muir-head, 2000), this study considers the instruc-tor's role as critical as an instructor in the regular class, especially when the majority of the students are first-time distance learners. The instructor sets the class syllabus and the curriculum, manages the class instructional process, teaches the students how to learn online, and guides the class activities. Further-more, this instructor has multiple roles: as teacher, technical supporter, learning facilita-tor, class organizer, information resource pro-vider, and conflict mediator. But the instructor's role change partially from instruc-tor to facilitator when the students' experience and skills gradually mature, allowing them to learn online independently. Between the role of a teacher and the role of a facilitator, there is a transition period. And between teacher-cen-tered distance education and student-centered distance education, there is also a transition period. Failure to consider this subtle period could cause problems in class.

The online distance educator should have a good attitude toward his or her students, and be a good e-communicator. The distance educator should be able to manipulate the strategies to predict, anticipate, solicit, and explore the information about the students and their needs to make good decisions and instructional design. The distance educator should be patient and generous enough to devote time to the learners, and provide resources and materi-als meet the needs, organize the learning remotely, make the abstract and sterile cyber class concrete and full of life, and make the learners willing to participate in class activi-ties. When teaching at a distance, the instructor must not be able to jump out of the traditional instructional format. The teacher needs to put effort on the following suggested aspects to help the learners overcome the format shifting frustration:

- Provide pre-class training at the start of the class
- Announce the format difference in online class
- Create an image and models among stu-dents, making the instructor felt nicely any time, anywhere, and with anything for the class
- Provide more timely support to the stu-dents' requests during their risky thresh-old period
- Prepare rich and adequate learning materials and resources to meet the learners' needs
- Make more multimedia rich programs to arouse students' interest in learning
- Improve instructor's skills of stimulat-ing meaningful learning interaction online
- Guiding the students' activities to the focus of the class content
- Give students choices to meet diverse learning styles
- Assess learning outcomes fairly and flexibly

The Student's Role

Students in distance-delivered courses are both learners and explorers who could adjust themselves well enough to the new learning environment and format. They must

1. have high self-efficiency—those who have the courage to stick to the distance class when frustrated are more likely to finish their first distance class;

2. have a positive attitude toward their unseen online classmates—those who placed trust in the participants in class (including the instructor and the students) and were confident of learning when faced with format shifting dilemma were more likely to succeed;

3. adapt to the new format of socialization online and are actively reading and post-ing information in the learning network like LearningSpace and Blackboard; and

4. be able to learn with both independent learning and dependent learning styles (skillful in finding dependable learning resources and able to switch between independent and dependent learning styles) (Slavin, 1985; Pressley, et al., 1995).

During the first distance class, the novice distance learners need understanding, assistance, mutual support, reliance, and persistent effort to overcome the barriers. The link and understanding between the instructor and the students is vitally important to resolve the problem; otherwise, the learning motivation, participation and the student attitude toward the class will be affected.

The format-shifting dilemma in the distance learning class has seven key elements for distance educators to consider.

1. **Recognize or fail to recognize.** Do you recognize the existence of the format shifting problems or overlook it? This would influence how you view this issue and how to prepare to solve this problem for the students in your class.

2. **Accommodate or resist.** Do you try to accommodate to the new instructional style or resist the changes when you prepare, teach, and evaluate the class you teach distantly? This would result in different outcome and perceptions.

3. **Support or leave them.** Do you try to support and show care to your students when they are in the transitional period of learning format transformation, or leave them as they are, letting them survive or fail by themselves?

4. **Encourage or punish.** When you teach a distance class, do you encourage your students to survive the format shifting hardship or punish them without thinking of their difficulty level and extra load during their learning format and style change?

5. **Flexibility or business as usual.** Do you provide flexibility or options for the students, or continue to use the traditional "business as usual" perspective to teach the distance learners?

6. **Rapport or conflict.** Do you value and establish rapport in class and mediate the conflict resulting from the problems during the format shifting period?

7. **Follow-up or bye-bye.** How well do you provide follow-up support and keep the social network of the distance class even when the class is over? Do you elicit feedback and improve your course quality after the class, or do you forget about your relationship with the students and lose the opportunity to back-up your own level of instructional quality?

SUMMARY

Understanding the reality of the format shifting effect in the distance education is vital for the people who teach at a distance. It is also helpful for the students who are taking their first distance class to understand that the format-shifting dilemma is unavoidable but transitional. A good transition and accommodation to the new learning format could minimize the starting difficulty, maximize learning effect, and provide a wiser metacognitive resolution to the problems encountered (Pressley, et al., 1995) to keep students better engaged in the new paradigm. Informational technology revolutionizes education, but human effort makes an essential difference. The format shifting issue is critical, but it has received less attention than other issues in the distance education literature. More research is required.

REFERENCES

Bauder, J. W. (2001). Technology-facilitated instruction: a shifting paradigm and an opportunity knocking. *NACTA Journal: The Professional Journal Serving College Teachers of Agricultural, Environmental, Natural, and Life Science, 45*(4), 68-75.

Becker, H. S. (1968). Social observation and social case studies. *International Encyclopedia of the Social Sciences, 11.*

Bull, K., & Stansberry, S. (1997). Developing college courses using computer mediated learning.

Quality University Instruction. Unpublished instructional manual, Oklahoma State University, Stillwater.

Carr, K. C., Fullerton, J. T., Severino, R., & McHugh, M. K. (1996). Barriers to Completion of a Nurse-Midwifery Distance Education Program. *Journal of Distance Education/Revue de l'enseignement à distance.* ISSN: 0830-0445. Extracted on Nov. 19, 2002 from http://cade.athabascau.ca/vol11.1/carretal.html.

Cox, E. S, Clark, W. P., Heath, H., & Plumpton, B. (2002). Key facilitation skills for effective online discussion groups: Herding cats through Piccadilly Circus. Extracted from http://www.com.unisa.edu.au/cccc/papers/refereed/paper11/Paper11-1.htm.

Cozby, P. C., Worden, P. E., & Kee, D. W. (1989). *Research methods in human development.* Mountain View, CA: Mayfield.

Creswell, J. W. (1994). *Research design: Qualitative and quantitative approaches.* Thousand Oaks, CA: Sage.

Galusha, J. M. (2002). Barriers to learning in distance education. Extracted on Nov. 1, 2002 from http://www.infrastruction.com/barriers.htm

Gay, L. R., & Airasian, P. (1996). *Educational research: Competencies for analysis and application* (6th ed.) Upper Saddle River, NJ: Prentice-Hall.

Glesne, C. (1999). *Becoming qualitative researchers* (2nd ed.). New York: Addison Wesley Longman.

Gregorian, V., Hawkins, B. L., and Taylor, M. (1992, Winter). Integrating information technologies: a research university perspective. *CAUSE/EFFECT,* 2-22.

Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation.* San Francisco: Jossey-Bass.

Kim, U. C. (1989). The scientific view. In Cozby, P. C., Worden, P. E., & Kee, D. W. *Research methods in human development.* Mountain View, CA: Mayfield.

Knapper, C. (1998). Lifelong learning and distance education. *American Journal of Distance Education, 2*(1), 63-72.

Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation.* New York: Cambridge University Press.

Lindlof, T. R. (1995). *Qualitative communication research methods. Current communication: an advanced text series* (Vol. 3). Thousand Oaks, CA: Sage.

Liu, D. (1996). *Teaching chemistry on the Internet (A Qualitative Case Study).* Unpublished Doctoral Dissertation. University of Nebraska, Lincoln.

Mahesh, V., & McIsaac, M. S. (1999). Distance education: Learner-teacher interaction and time spent teaching. Paper presented at the National Convention of the Association for Educational Communications and Technology, Houston, TX. (ERIC Document Reproduction Service No. ED436154).

McIsaac, M. S., Bocher, J. M., Mahesh, V., & Vrasidas, C. (1999). Student and teacher perceptions of interaction in online computer-mediated communication. *Educational Media International, 36*(2), 121-131.

Merriam, S. B. (1988). *Case study research in education: A qualitative approach.* San Francisco: Jossey-Bass.

Merriam, S. B. (1998). *Qualitative research case study applications in education: revised and expanded from case study research in education.* San Francisco: Jossey-Bass.

Meyer, T. P. (1988). In T. R. Lindlof, *Qualitative communication research methods. Current communication: an advanced text series* (Vol. 3). Thousand Oaks, CA: Sage.

Moore, M. G. (1993). Three types of interaction. In K. Harry, M. John, and D. Keegan (Eds.), *Distance Education: New perspectives.* London: Routledge.

Moore, M. G. (Ed). (1990). *Contemporary issues in American distance education.* New York: Pergamon Press.

Moore, M. G., & Thompson, M. M. (1990). *The effects of distance learning: A summary of the literature. Research Monograph Number 2.* Southeastern Ohio Consortium (ERIC Document Reproduction Service No. ED330321).

Morgan, D. L. (1997). *Focus groups as qualitative research: qualitative research methods series 16* (2nd, ed.). Newbury Park, CA: Sage.

Muirhead, B. (1999). *Attitudes toward Interactivity in a Graduate Distance Education Program: a Qualitative Analysis.* Dissertation.com. Available: http://www.disssertation.com/library/1120710a.htm.

Northrup, P. (2001). A framework for designing interactivity into Web-based instruction. *Educational Technology, 41*(2), 31-39.

Offir, B. & Lev, Y. (1999). Teacher-learner interaction in the process of operating DL (distance

learning) systems. *Educational Media International.*

Pressley, M., & McCormick, C. B. (1995). *Advanced educational psychology: for educators, researchers, and policymakers.* New York: Harper Collins College Publishers.

Rubin, H. J., & Rubin, I. S. (1995). *Qualitative Interviewing: The art of hearing data.* Thousand Oaks, CA: Sage.

Shaw, K. E. (1978). Understanding the curriculum: The approach through case studies. *Journal of Curriculum Studies, 10*(1), 1-17.

Slavin, R. (1985). An introduction to cooperative learning research. In R. Slavin, S. Sharan, S. Kaga, R. H. Lazarowitz, C. Webb, & R. Schmuck (Eds.), *Learning to Cooperate, Cooperating to Learn.* New York: Plenum.

Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin, 63,* 384-399.

Vygotsky, L. S. (1962). *Thought and language.* Cambridge, MA: M.I.T. Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wegerif, R. (1998). *The social dimension of asynchronous learning networks. Journal of Asynchronous Learning Network. 2*(1). Extracted from http://www.ah.org.

Wood, H. (1996). Designing Study Materials for Distance Students. Extracted from http://www.csu.edu.au/division/oli/oli-rd/occpap17/design.htm.

Yin, R. K. (1994). *Case study research: Design and methods.* (2nd ed.). Beverly Hills, CA: Sage.