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Noriko Hara
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STUDENT DISTRESS IN A WEB-BASED DISTANCE EDUCATION COURSE

Noriko Hara
University of North Carolina at Chapel Hill, USA

Rob Kling
Indiana University at Bloomington, USA

Abstract

Many advocates of computer-mediated distance education emphasize its positive aspects and understate the kinds of communicative and technical capabilities and work required by students and faculty. There are few systematic analytical studies of students who have experienced new technologies in higher education. This article presents a qualitative case study of a small graduate-level web-based distance education course at a major US university. This paper examines students' distressing experiences due to communication breakdowns and technical difficulties. This topic is glossed over in much of the distance education literature written for administrators, instructors and prospective students. The intent is that this study will enhance understanding of the instructional design issues, instructor and student preparation, and communication practices that are needed to improve web-based distance education courses.

Keywords

distance education, WWW, asynchronous communication, student experiences, online learning

INTRODUCTION

Cutting-edge digital communications and learning technologies enable universities to implement distance education to reach more diverse populations and to provide more available learning environments 24 hours a day, 7 days a week. This article focuses on internet-enabled courses that rely primarily on asynchronous, text-based communication media, which are growing rapidly (National Center for Education Statistics 1998).[1] It describes a detailed study of one such course, particularly the students' feelings of distress.

There are at least five major kinds of literatures about Internet-enabled distance education, covering: specialized research (such as the *Journal of Asynchronous Learning* and the *American Journal of Distance Education*); practitioners (e.g. the

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Chronicle of Higher Education); instructional materials for specific courses; popular accounts of such courses; and marketing descriptions.

Most of these diverse sources emphasize the likely value of Internet-enabled distance education institutions for reaching new students and generating new revenues. The prospective students are attracted to convenience, and possibly enriched educational experiences.

There is some debate about the actual costs and profits of distance education (Green 1997). Among academic practitioners, there has also been considerable concern about whether universities or their faculty own the instructional materials they develop for these courses (Noble 1998). Some research studies have examined the difficulties faced by instructors in developing and teaching such courses (Rahm and Reed 1998). However, it is hard to find studies that give the students' perspectives, other than through course evaluation forms and concise characterizations of students' comments and experiences (Wegerif 1998; Rossman 1999). The majority of practitioner and popular articles tend to emphasize the virtues and minimize the difficulties of routinely providing high quality and effective Internet-enabled distance education courses (e.g., Barnard 1997; Yakimovicz and Murphy 1995). This promotional bias has been characteristic of similar literatures about computerization (Kling 1994). Further, many characterizations of this form of education deftly intertwine themes of needed educational reforms to improve accessibility and a larger cultural narrative about 'the death of distance' (Iacono and Kling in press).

Our study's intent was to increase understanding of the distance education process, and of students' actual experiences in an Internet-enabled course.

BACKGROUND TO STUDY

In 1997, we undertook an ethnographic case study of student experiences in a specific online course. The first author conducted interviews and observations on the course,[2] and collected course-specific documentary data. We chose the course to study only because of the availability of in-depth data made possible by the instructor's permission to allow observation of the online class and interviews with the students, thus allowing more observational and ethnographic data than was previously reported.

Our original research question was: 'How do the students in this course manage their feelings of isolation in a virtual classroom in order to create the sense of a community of learning?'. However, during the study we learned that student isolation was not a major problem, although some prior studies have cited its importance in distance education (e.g. Besser and Donahue 1996; Rahm and

Reed 1998). The recurrent experiences of other types of distress, such as frustration, anxiety and confusion, seemed to be pervasive. Possibly because of the small class size, the students supported each other and developed a sufficient sense of community.

A few studies of online courses mentioned students frustrated with technical problems or anxious about communication norms (Dede 1996; Feenberg 1987), but emphasized the value of the student learning. We felt that the substantial distresses about such aspects reported in our study were not incidental and could actually impede learning (Hara and Kling 2000). So, we shifted our focus to examine the conditions that led these students to be distressed and to some of the consequences. We also reviewed the literature of Internet-enabled distance education, but found only one study reporting on such phenomena (Wegerif 1998).

Among the practitioner literature, there is much advice for instructors of face-to-face lecture classes (e.g. McKeachie 1999). However, we could not find materials of similar quality about online courses which could help to avoid the difficulties we observed. Handbooks to enhance face-to-face teaching often anchor their tips in specific research and flesh them out with contextualized examples. In contrast, articles with tips to improve online teaching are rarely explicit about the basis for the recommendations, and often do not provide examples of ways that students and instructors can utilize the typically generalized advice (such as 'emphasize interactivity'). The huge discrepancy in the quality, quantity and accessibility of the materials for face-to-face versus online courses leads us to suspect that the difficulties experienced in our study might also be experienced by students in other web-based courses.

This small-scale case study therefore raises interesting and important national-scale issues that merit serious engagement. The key issue is to understand how people work with their innovations in practice, without censoring what is problematic. This article may help stimulate a better understanding of instructional design issues, instructor preparation, student selection practices and communicative practices that should be widely encouraged.

THE COURSE WE STUDIED

We studied a graduate educational technology course at a major university. In the course, students learn how to use information technologies in their areas of expertise. It was taught through a website developed the previous summer by graduate students working with close faculty supervision. The site contained links to reading materials, activities, discussion questions, additional readings, the

course syllabus and assignment instructions. After students entered their usernames and passwords, they would see the menu screen. This page used the metaphor of a traditional classroom, so that the student could be situated in a familiar environment.

In 1997, B3002[3] enrolled eight master's students; six of them completed the course. Four students had only minimal experience with computers, but one was enthusiastic about technology and spent 30–40 hours a week for this course at the beginning of the semester. One student was very familiar with computers, and was also familiar with the course's content through friends who had taken B3002 during the prior summer. The sixth student trained teachers in integrating computers into a curriculum, and lived far from the university, thus did not have direct access to university facilities. This was the only student who had taken a distance education course prior to B3002. The instructor was a PhD candidate who was an experienced educator. This was her first experience teaching in higher education and by distance education. She had taken B3002 in the summer of 1996, audited B3002 again over the previous summer and was part of the B3002 website design team. This site was used in a traditional class version of B3002 during the previous summer, but was not substantially altered for the online version of B3002. Instead, the instructor sent weekly e-mails to inform the students about the differences in some activities.

The inquiry used three methodologies: *observation* of relevant activities, such as classroom discussions and during students' interactions with the course website, when they were asked to 'think aloud' while using a computer; *interviews* of about one hour with students immediately after they had finished online tasks, as well as informal conversations with some students and the instructor; and *document review*, including the course syllabus and reading assignments. Comparison of the information collected from various sources helped to verify the data. This was done to check that different data collected from a given informant supported each other, and that different informants tended to report similar issues. Informed consent was obtained before each of our observations and interviews, and interview transcripts and interpretation were validated by participants. Pseudonyms are used in order to protect the informants' identities.

STUDENT DISTRESSES IN AN ONLINE COURSE

The students did not report that all of their course activities were distressing. However, the following examples illustrate the distressing events that stood out for them.

A Virtual Field Trip

The following observations[4] were made at a special event in the middle of the semester which provided an opportunity for the students to visit the virtual online SchMOOze University.[5] When people join SchMOOze University electronically, they see text-based screens. People can also use simple commands, such as 'go to east', to explore different virtual buildings to meet others from all over the world. Prior to this event, the instructor had used e-mail to send out instruction and a map for the SchMOOze University.

All students and the instructor were supposed to gather at a virtual meeting room at 8:30 p.m., so that the instructor could see who was online. One student, Kathy, was being observed. She started the field trip at her home by typing: @knock MMM (instructor's name), but the computer replied:

>I don't know

Kathy said, 'It doesn't understand. How stupid it is. Let's try with a different name'. Then she typed: @knock mmm two or three more times, but continued to receive the same response. She murmured, 'I don't know what I am supposed to do. Maybe I am already in'. Several messages then appeared on her computer screen, where conversation proceeded very quickly, making it very difficult to follow. A student complained:

>Sheryl: Please slow down.

However, the conversation never slowed. When Kathy saw the message:

>MMM: everybody seems familiar with commands.

Kathy typed, 'I practised this afternoon'. When she typed, Kathy seemed very careful about spelling and capitalization.

>Sheryl: I like the action of calling rows.

Kathy remarked, 'I think what she means is "calling role". Sometimes it's confusing, half of the students are non-native speakers'. Kathy then saw the message:

>Julie: Julie is here

She tried to respond to it. While she was typing, she commented 'By the time I type in my response, the conversation is gone'. She typed 'Welcome', intending

this comment for Julie, but at this time several people who were not in the class joined the discussion.

The first 30 minutes went by very quickly while Kathy tried to identify who was there and what to do. Kathy explained, 'This is the first time we talked together'. She complained, 'What are we supposed to do?' and glanced at her watch. It was almost 9 p.m. and, according to the instructor's guideline, students were supposed to leave the original meeting room, go to different buildings at SchMOOze University, and look for possible student activities. Therefore, Kathy typed 'Are we supposed to move around now?'.

>MMM: choose buildings

When she saw the instructor's message, she murmured 'I'm going to be out, go to lobby, and go to Mall'. However, she couldn't find anybody to talk to at the virtual Mall, so she manoeuvered herself back to the original meeting room. She saw on the screen that there were still students from the B3002 class continuing discussions. She said, 'Now, I'm back to the discussion' and typed 'Guess I need to stay put'.

>MMM: go to the building

Kathy said, 'I feel like nobody is answering my question', and complained 'I've already been around the campus and . . . '

While she was deciding what to do next, the online discussion at the meeting room was continuing. When she saw a message referring to Ann, she typed 'Who's Ann?'. The situation was chaotic in the room because different simultaneous conversations were overlapping. Before identifying Ann, Kathy said, 'Maybe I'll explore the campus now'. She suggested to her classmates that they go to a virtual bar, by typing 'How about the bar?'. She then saw everyone's agreement, as well as a message saying:

>Knock, knock

Kathy suspected that somebody had knocked at her door. She responded by typing 'Enter', but received no answer. She muttered, 'What am I supposed to do? I'm confused' and looked at the instructor's guide. Kathy assumed Julie was sending a message that knocks at her door because she saw Julie's message asking her a question, and thus she tried to find where Julie was. Kathy then moved to where Julie was and Julie sent a message to her.

>Julie: I don't want to leave you at the bar alone.

Kathy laughed when she read the message. Julie tried to instruct her how to respond to a knock in this text-based environment, but Kathy was still struggling. Kathy looked at her watch and said, 'This is exactly an hour'. She told me, 'If I have one complaint about this class, it is that time goes so quickly. I can be hooked up with a computer for a whole day and then realize that I haven't had a dinner or I haven't prepared my lesson plans'.

Kathy had tried to be well prepared for this special event, including visiting the SchMOOze site earlier in the day – although no one had then responded to her attempts at conversation. Nevertheless, she had experienced many difficulties during the field trip. She was overwhelmed by her first experience of the fast pace of communication and felt frustrated at not being able to figure out why she could not operate her intended commands. There was no one to ask for help, so she had to attempt to resolve the difficulties by herself.

Another student, Amy, was also frustrated by the problem she had with operational commands at SchMOOze University. At a computer lab a few days after this event, Amy commented that she had 'got lost' at SchMOOze University when she planned to meet with the classmates. She added:

> I talked to other people from different places at SchMOOze University, but not my classmates. I was so frustrated because everyone else could do it, but why not me? Not only for the SchMOOze University activity, but I put in lots of time for this course overall, but I couldn't see the results. Like I paid a hundred dollars, but I only got ten dollars back. I probably spend a hundred minutes, but I can get ten dollars worth.

Julie also had a distressing experience with this virtual trip. The slow connection from her computer meant her responses were significantly delayed. On the day after the virtual field trip, another student also reflected on the trip in a personal e-mail to the instructor:

> I thought your [the instructor's] preparation for our visit to SchMOOze U was excellent. . . . I did not enjoy our class excursion there however because the technology did not live up to expectations. I also felt more encumbered by knowing people there. I was more cognizant of hurt feelings and other people's frustration, and it narrowed my exploration.

There were, however, some positive comments about the virtual field trip. John seemed to be excited about the new technology he was experiencing and was generally enthusiastic about the SchMOOze University activity, despite encountering some negative aspects:

> I'd loved the MOO session. I felt like doing that, we're really sort of like a community. I was totally laughing, at my computer, laughing. It's so weird to laugh at the computer. But I

was laughing because I really felt somebody's there talking. And I met a person that was kind of cold to me and asked me weird questions, and they never really answered my questions. That hurt, you know? So it's real feelings that were involved.

Working Alone at Night

It is common for students in many online courses to work alone, often at home in the evenings or weekends. However, it is hard for students who work under these conditions to resolve potentially frustrating problems that can typically be discussed and resolved more readily in a face-to-face class meeting. The dynamics of this issue is illustrated by the experiences of one student, John, whom I met unexpectedly when he was working alone after midnight in a campus computer lab.

The week's topic was 'feedback and time'. John was working on an assignment to evaluate a set of lesson plans that used information technologies in education. He was to use the Internet to find these plans, which had been developed by various unknown instructors located by the B3002 web design team. John started talking:

J: I am frustrated because I am here too long (laugh).
I[6]: How long have you been here?
J: Ohhhhh, I . . . probably nine o'clock, I guess.
I: Four hours?
J: Yeah. So, my eyes are tired. Of course, a part of the problem is not totally the class's fault. Part of the problem is finding things really interesting. They don't completely relate to the class. I mean, we are looking for things, lesson plans that we have to evaluate, right? And there are all kinds of great lesson plans. I am looking for ideas for my classes and I just get stuck. Then by the time I'm at the place where I really need to be doing my work, I'm totally frustrated because I really want to go home. I don't want to be here anymore . . .
I: Too much information?
J: Perhaps. I mean these links on the B3002 website have all the lesson plans that we can give to a class. I think this one [pointing to a link], just tons and tons of activities, but most of the stuff on these, I don't like.

John went on to explain that he was frustrated and distressed with the poor quality of many of the lesson plans he had found for his assignment. He reported significant distress during this interview. He still had not received specifications for the assignments from the instructor and was confused about her expectations.

When I left the computer lab, John returned to his assignment and declared, 'I will finish this work anyway. It'll probably take an hour and it may not be a good work. . . . But just do it'. It was almost 1:20 am.

Interactive Communication Tool: E-mail

The students and instructor relied upon e-mail as a primary means of communication. In fact, the instructor required that students post e-mail to the class discussion forum 'at least 5 times during the course' and 'to check the list daily'. The students and the instructor generated quite intensive online discussions through e-mail, and all of the students posted far more than five 1–2 page-long messages. On the surface, this indicates a lively class. However, we found that there were some underlying problems with the reliance on e-mail.

First, some students did not read other people's postings before writing their own e-mail messages. Second, some students were unable to make time to read and post e-mail during short intensive discussion periods; some reported being overwhelmed by the volume of e-mail. For example, the student who posted the fewest number of messages to the online class discussion sent an e-mail with the subject line: 'Ah . . . I cannot catch up with all of you'. Some of the student difficulties were a byproduct of using e-mail differently than the 'standard view', in which students reading e-mail online and reply immediately from their computers.

My observations of Amy, who did not have a computer printer at home, revealed a more complex way of working. She logged in from a campus computer lab and copied all of her e-mail messages into a word-processing file. 'After that, I delete the messages because it's too much e-mail'. At the lab, she printed out all the e-mail messages and readings for B3002 and then read them at home. She replied to messages on another day, when she returned to the campus computer lab.

Another student, Eric, also commented about the overwhelming e-mail messages:

> I don't like, I have to say, turning on the computer and finding that I have eleven messages on my e-mail. It's a pain. I mean to answer that many things, just talking in conversation would be so much easier, rather than replying and doing all the stuff you have to do. So, that is just time-consuming, but it is a part of at a distance. I think if you are doing that, you have to be aware that you're gonna be spending more time with computer problems, not getting online, software freaking out, crashing, whatever it's gonna happen, gonna take you a lot longer, waiting in a line at a lab. There are so many things that make it kind of difficult to do.

It appeared that students in B3002 were competing with each other, or felt obligated to produce a notable number of thoughtful and detailed e-mail messages. The category 'e-mail messages' includes short conversational notes and more elaborate multi-screen memos, mixed with the student's other more general e-mail flow, such as messages from other students, friends and administrative

announcements. The instructor also commented that at the beginning of the semester she was spending all day reading and responding to e-mail messages. Later in the semester, she was able to reduce her workload, but still spent a large amount of time on this course.

Other research also indicates that it can be very demanding for students and instructors to read all their messages when they are sent asynchronously at different times (Hara *et al*. 2000; Hiltz 1998; Wegerif 1998).

UNDERSTANDING STUDENT PERSPECTIVES

Complexities of Working Alone

A valued advantage of asynchronous distance education is its ability to allow students to work at different times and in different locations. However, students in our study reported some confusion and anxiety because of the absence of physical cues in communication interactions, as B3002 had no video support. For instance, when John was working on a B3002 activity in a computer lab, he pointed to an e-mail message from the instructor and said:

> I agree with her, but I am not sure if I should send a message saying, 'I agree'. That's the problem with this e-mail. If this is the classroom, you can just nod your head to show your agreement. I am not always sure that if I am contributing enough or not. Other people, like Julie and Kathy, are really active. I feel a sense of competitiveness. So, my survival skill is not to respond. In fact, I haven't gotten any feedback about my contribution. I cannot tell from the e-mail. You can tell from the classroom what the professor thinks about you from the body language and the way they talk. So, I am not feeling that I'm getting enough assessment.

Eric also indicated his frustration with not getting enough feedback, while Sheryl expressed her frustration with the lack of immediate assistance from the instructor, as well as the difficulty of finding information on the internet. When working on a B3002 assignment, Sheryl typed the keyword instructions for evaluating 'electronic learning' at the Yahoo Education site. The computer responded:

> >There is no website to match your inquiry.

Sheryl looked unhappy. It is likely that she had used too specific a phrase rather than a careful selection of keywords. She next went to the AltaVista search engine because one of her friends had told her that 'AltaVista is much better'. AltaVista helped her to locate one website, but that didn't help her. Sheryl did another search with the keywords 'educational assessment', which produced too many

matching pages. She tried to narrow down her inquiry by adding 'assessments' and 'education'. When this seemed to produce a more reasonable list of the sites for her topic, she printed out two pages for her assignment. While she was assessing the websites, she also read the e-mail instruction from the teacher again to make sure she was on the right track (she carried a 3-inch-thick folder with all the e-mail messages for this course). Sheryl next went to the website referred to in the e-mail instruction, but she did not find relevant readings there. So, she went to yet another search engine, InfoSeek. After three different keyword searches, she found a promising reference. However, when she tried the links on that page she could not reach the sites she was looking for. Sheryl compared this experience to what she had heard about the B3002 class that had been taught over the summer: 'They had more resources. They saw a teacher in person, so they might have had the same problem, but not as much frustration as this.'

Commentary

In contrast to John's positive comments on the virtual fieldtrip, he seemed to be unsure about the communication conventions appropriate for participating in the online class. Eric had indicated the same problem. Some of their anxieties and communicative confusions were caused by the lack of feedback from the instructor because they couldn't see her physically. That is the byproduct of having limited social cues, such as gestures and facial expressions (Harasim, McIsaac and Gunawardena; Feenberg 1987).

Sheryl expressed frustration at her poor background in understanding effective web searching and a lack of immediate help. One gap in the 1997 version of B3002 may be the (tacit) assumption that graduate students in this program all had good online search skills. (The face-to-face version of B3002 included interns who could consult with students at their PCs when they had technical problems.)

The lack of prompt feedback from the instructor was certainly a major source of anxiety and frustration for students because they were concerned about their performance. , 'the concept of interaction [including feedback] is fundamental to the effectiveness of distance education programs as well as traditional ones' (1996: 407). Bonk and Cummings also suggest the significance of feedback in web courses. In B3002, the instructor did apologize later in the semester for not providing 'enough and prompt feedback.'

Technological Problems

During the interviews, some students reported frustration with technological problems and the absence of personnel to provide technical support. Unlike the

other students, the following informant was taking the course from a distant site. She indicated three areas of frustration:

> First of all, inappropriate prerequisite statement. For example, there is nothing to say that you should know HTML, but our first assignment was creating a web site. Fortunately, I knew it. I'd explored learning how to do HTML by myself. If I didn't know, I just cannot imagine how to get through. Secondly, this course is very time specific. The course I took before, I could go in anytime and finish anytime. However, this course is very specific in terms of time. For example, I got into the class a week late and the instructor sent me e-mail saying that they had already started. As an old learner, I felt so intimidated. I felt pressure to catch up. Third, accessibility to technology. This is related to the prerequisite. There is nothing that says we should have access to a web server. However, when we developed the web site as an assignment, we had to have the server access. Since I work for a school, one of the technical people helped me to connect to the web server. If I didn't have these resources here, I would have dropped this course.

Some students expressed their anxieties and frustrations with the course in their e-mail messages. For example, on a Friday evening a student wrote the following to the instructor:

> I have spent one hour trying to follow your directions. I am getting an error message. The first time I tried to download it as a zip file, the error says, cannot access this file. I am getting extremely frustrated.

On Saturday afternoon she wrote another e-mail message regarding the same issue:

> This computer is very frustrating. I would imagine it is like sitting in a class and only understanding some of what was said, then asked to answer a question. I have felt it . . . *panic* . . . *isolation* . . . *frustration* . . . *anger*. This has been a very good lesson. I will keep trying.

About 30 minutes after this message, the student sent an e-mail message saying that she had solved the problem.

The instructor's personal reflection notes expressing her problems and frustrations with not being able to solve the student's technical problems offered a different perspective, and helped us better understand the class dynamics. For example, the instructor wrote:

> I may need to understand more about how network and ISPs [Internet Service Providers] work. This to me is a hardware issue that I really did not want to touch and that I don't know how much help I could give to people. But, Julie and the previous two real distance students (who dropped out after several frustrated experiences) keep pushing me to this knowledge domain.

Because of their e-mail interactions, the instructor knew that students had difficulty dealing with technological problems and felt frustrated. During the interview, she commented:

> even though we provided them with very good, we thought, very good job-aids, but still they had difficulties. Help themselves learn. They are not in that kind of mode yet. They still need help. I guess both them and us, we are not used to this kind of environment at all. If you are in a classroom, a teacher can lead them during the process, so whenever they have problems, we can just fix it, right on a spot. However, if you give them the job-aids, if there is anything wrong there, there is no way we know. There is no way we can fix it right away and make it smooth for them. So that's frustrating for them and also frustrating to *me* because sometimes you feel that you've done everything you could, but it just doesn't work out that way.

Commentary

The problems with technological hardware and support reported by students on the courses is reflected in several research studies (e.g. Burge 1994; Wiesenberg and Hutton 1995). However, these studies do not thoroughly investigate the issue, although the importance of computing support for professional work and even the public's use of the Internet has been well reported in other research (see Kling and Jewett 1991; Kling 2000).

Pedagogical Issue – Ambiguous Instructions

Much of human communication is inherently ambiguous. But people can often adequately resolve key ambiguities when they are face to face. When the primary communication medium is written text, resolving ambiguities may be more difficult for many people, as Amy indicated in the following interview excerpt:

> Though I understand each sentence and word in the e-mail that the instructor sent us, I don't know how to use the instructions to compose the programming. Because in her instruction, sometimes I can follow steps 1 and 2, and then I can't follow from steps 2 to 3. So I go back to the beginning and start over. The instruction is all in text, no graphics because she sends it to us through e-mail. . . . So, when I submit my assignment, I always put a note to her, 'please let me know if I need to do more, or if I need to delete something' to make sure I do the things that I am supposed to do, because I don't know exactly what the instructor wants.

Amy identified two recurrent sources of communicative ambiguity. She had trouble adequately interpreting both the instructor's weekly e-mailed instructions, as well as the instructions on the B3002 website. For instance, one of the activity instructions on the website was:

1. Review the sample testware package that you have. What does it test? How do you think it facilitates learning? OR Visit one of these sites: [List of URLs]
2. Read at least two electronic portfolios (student works) in Student Project page [URL]. How would you give feedback to the student?
   OR
3. To create a quiz on the Web, here are some tools you can use: [List of URLs]

The instructor's intent was to give the students flexibility. However, some students did not consider this flexibility to be an advantage, and they wanted more structure and clearer direction. Sheryl, for example, said:

> I think the biggest problem [in this course] is the instruction of our assignments. I usually don't understand what she wants, either e-mail or from the website. Actually I shared the print-outs with my friend. He is a doctoral student, and he looked at the instructions. He thought that our instructor was not a very good presenter because he also agreed that those instructions were so ambiguous that it's very confusing. There were no points at all. Sometimes, she takes all kinds of responses and she would say, 'it's good you are creative,' but sometimes I got her response saying this is not what I want. So I felt very frustrated because we were supposed to be creative and that's what I came up with, but she said that's not what she wanted.

Sheryl went on to relate her dissatisfaction with the amount of content provided by the course, particularly that of theoretical orientation to the material. Unlike the other students in the class, Sheryl had no prior background in the subject area. Given the course's lack of clear instructions, background information, or even explicit definitions of terms, she found herself having to attempt to glean this information from the general class discussions, and felt that she had only gained a general sense of the material. Like Amy, Sheryl also gave up trying to clarify the instructor's expectations after asking her a few questions.

Kathy's frustration was that she was uncertain what the instructor expected because she could not see the instructor physically. She also gave an example in an e-mail message of how she misinterpreted the instructor's message:

> You sit in a [traditional] classroom with somebody and you analyze who they are, and what they like. You cannot analyze these things online because you've never seen them. So, you are only guessing at what the teacher really wants. You don't know how to interpret what they say because you don't know their personality. Like one time, the teacher was joking and I took her seriously and it really hurt. She was saying that, I can't remember what it was now, but something about that nobody is working . . . since none of you are working at this, maybe we should do such and such and I wrote her back, 'what do you mean we are not working. I am spending 6 hours a day' and she wrote back and said, 'it was only a joke'. . . . but I think if you are, like, very careful in what you write and communicate often with people, you can put them easily to get to know you.

The instructor knew that the instructions on the web were too ambiguous, and attempted to clarify them. For the final project, she sent out an e-mail message saying 'I think we need a set of very clear criteria so that you and I know exactly what you are expected to do and how your project will be "judged"'. However, this attempt did not succeed, as a few students posted questions about her 'clear criteria'.

Both the students and the instructor reported periodic distress with this course. Even so, during interviews the students complimented the instructor's overall performance. They appreciated her support. Some students even sympathized with her because she also had to resolve many technological problems. The distance education format amplified the difficulty of interpreting the student messages, as the instructor reported receiving periodic e-mail about ambiguous expectations for the course.

Commentary

Three student concerns stand out. First, the asynchronous 'anywhere-anytime' format of B3002 often led to significant delays between the times that students raised questions and the times that the instructor could reasonably answer them. In face-to-face courses, in contrast, students can reduce major ambiguities by conversing with the instructor and each other during class meetings. Second, this course's website was originally developed for the same course offered in summer in a traditional classroom, so did not always fit the distance requirements of B3002. For example, students were instructed to form teams, although in the web-based distance education course students had to work individually. Third, the website had been developed before the course had started, and some links to other websites were no longer accessible. Not all the students in B3002 were familiar with the technology used in the course and some were feeling rather overwhelmed. Therefore, the unclear instructions and expectations for B3002 probably amplified their anxiety.

Dealing With Distresses

Amy stopped discussing problems with the instructor after one bad experience. She dealt with her distresses with B3002 by talking with a classmate of similar ethnicity in her own native language. Amy explained:

A: I am calling a friend every week, just to complain. She is a good listener, whenever I complained, she just listened and I felt better.

I: Did you complain to your instructor?

A: Once.

I: Why just once?

A: I complained once about the difficulty of searching on the web, and she gave me the tips for searching as I told you before. After that, I didn't complain because I felt stupid. I should have spent more time on this, but I couldn't because I'm too busy. If I hadn't taken this many courses and also work, I could . . . if you want to take this course, you *have to* spend time. I want to complain, but it's not the instructor's problem, or the class's fault. It's my problem. There is nothing she can do about it.

Despite his periodic frustrations, John expressed a different view in an informal conversation. He believed that his frustrations were a good learning experience because now he understood what his students might experience when he teaches similar courses in the future.

B3002's instructor did try to help her students resolve their difficulties. Later in the semester, she started to ask students for their suggestions to improve tutorials and teaching materials. She believed that at this point the students felt less frustrated. In her personal reflection notes she wrote:

> It was from the MOO week that I started asking them for improvement ideas, and it seems to me that this opened a new door for communication. . . . All of the sudden they agreed that it is all right to be frustrated when following instructions that are with flaws, because flaws give opportunities to think and to gain real control.

Commentary

If students could deal effectively with their frustrations, B3002 might not be a negative experience. In fact, the students supported each other by sharing their frustrations with their friends or classmates. We suspect that without this mutual support, none of the students would have completed this course. Some students felt a community of learning with their classmates. The instructor also helped create a sense of community among the students. Bates (1994) claims that one of the major contributions of two-way technologies is allowing interactions among students as well as between students and instructors, and there was some active interaction among students in this course. Many researchers note the importance of virtual community to support students (e.g. Burge 1994; McIsaac and Gunawardena 1996). In this case study, however, it seemed that student distresses – confusion, anxiety and frustration – recurred throughout the term.

CONCLUSIONS

Instructors Misperceptions of Student Distress

From the interviews and observations, we found two foci of student distress in B3002. The first was technological problems, and students without access to technical support were especially frustrated. The second involved course content and the instructor's practices in managing her communications with students. Students reported confusion, anxiety and frustration when they wanted prompt feedback from the instructor, and when they found ambiguous instructions on the web and in e-mail messages. The instructor did not appreciate the duration of the student distress. She believed she had effectively eliminated their anxieties and frustrations during the term, noting during an interview:

> They [the students] thought that the problems they had were basically their own; other people did not have the same problem until we opened up the conversation and they realized that, oh, yeah, we were all in the same boat. Now, they have this peer support coming in. That [problem], I think, we took care of pretty well.

However, her students still expressed their frustrations and anxieties during observations and interviews late in the semester. Part of the reason for the instructor's misperception resulted from the student's reluctance to express all of their anxieties, frustrations and confusions to the instructor, probably because of the frequent power differential between students and instructors in university courses. We suspect that these difficulties were exacerbated by the weaker social cues of asynchronous text-based communication. After all, small elective graduate courses are often highly rated, in part because instructors can better appreciate their students experiences and preferences than in larger courses, and because they have greater latitude in flexible adaptation during the term.

The Pains of Innovation

We caution against emphasizing only the virtues of computer-mediated distance education, as is done in most articles written for practitioners (i.e. administrators and teachers), and lay people (e.g. potential students). In some of these upbeat studies, students may not have had opportunities to express their confusions and anxieties with web-based distance education. At the end of the semester, students might make positive comments about the courses because of a relief in finishing a course and concern about hurting the instructor's feelings. For example, one B3002 student posted this 'thank you' note during the final week:

> I do believe you all are the best classmates and instructor I have ever met. I can see your hard work, your enthusiasm, and your patience learning along. I'd like to say that the most successful condition I've learned from this class is a warm and supportive class atmosphere.

If students give public evaluations like this in courses like B3002, the positive results of many studies, including such findings as students enjoying their experiences despite communication breakdowns and technical problems, can be artifacts of the research methods. Unfortunately, only a few scholars (e.g. Bromley and Apple 1998; Feenberg 1999; Jaffee 1998; Wegerif 1998) examine important limitations and pervasive problems, and their studies are found in the specialty research literature rather than integrated into the practitioners' literature.

We found some discrepancies among the different data sources: observations, interviews, and e-mail messages. Triangulating various kinds of data sources enabled us to see this distance education course from a different perspective. We recommend that future researchers use this kind of multi-source methodology to study distance education courses.

Understanding Instructional Work and Communication in Practice

It is time to examine seriously actual experiences for students in distance education courses and to discuss critically the wide array of practices and experiences that undermine the outcome of distance education. It is easy to place the burden of student frustrations wholly upon the instructor's limitations. One might argue that this course was a unique case of an insufficiently experienced instructor poorly teaching an online course, which tells us nothing about online courses in general. We disagree. In this era when the number of online courses is growing rapidly, many instructors teaching them are likely to be leading their first online course. Yet, we have not found any widely publicized articles that encourage faculty who are starting to teach an online course to prepare in special ways.

We believe the students' ongoing concern about 'prompt unambiguous feedback' is much more difficult to achieve in text-based asynchronous courses than in face-to-face conditions, for instance because of the way students worked on the course during late evenings and weekends. This issue could be even more significant in larger classes. What is needed is for students and instructors to learn how to manage their expectations about when they should be able to have reliable, fast communicative responses.

Part of the communicative complexity of constructing adequately unambiguous conversations via text-based media comes from trying to anticipate the level

of detail and phrasing that will be sufficiently helpful to others. But, as our informants noted, they were also unsure what meta-communicative conventions would be appropriate in their online conversations. E-mail that represents the nodded heads of a face-to-face group could be valued by an instructor to confirm others' understanding. Or it could result in yet more e-mail glut. These kinds of practices need to be negotiated within each group. In B3002 and many other courses, both face to face and online, participants don't explicitly question and negotiate meta-communicative conventions, even when they are confused and frustrated. These discussions and negotiations require a higher level of social skills from all participants. And their enactment, such as creating a strong social presence in a written medium, also requires time and expressive capabilities. This is not well explained in the literature of online instruction. Clearly, we need more student-centred studies of distance education designed to teach us how the appropriate use of technology and pedagogy could make distance education more beneficial for more students, with the best of such research translated into the practitioner literature.

There is, of course, broad public appeal for the hope of inexpensive and convenient education, especially for people who are working or who have extensive family commitments. Unfortunately, little of the practitioner literature and even less of the popular literature about distance education effectively identifies the complexities of working and communicating with 'new media'. It appears that few academic administrators, especially those that are a few levels away from the front lines of teaching, understand these complexities very well.

Administrators who want to encourage their faculties to teach online courses coax instructors into viewing them as easy to take on, rather than as a complex instructional engagement that can require new materials and new behaviours. High quality education, both online and face-to-face, is neither cheap nor easy. We have not heard of administrators in traditional universities who encourage regular faculty to teach online courses also insisting that these instructors immerse themselves in the most sophisticated literature about distance education and computer-mediated communication before they are allowed to teach online.

We understand that there are many high quality online courses taught today. However, a careful reading of the literature suggests these courses are usually taught by highly dedicated and very experienced instructors. They are said to be much more labour-intensive for their instructors than comparable face-to-face courses. Analysts argue that some of these courses can be much better learning experiences than their in-place equivalents. But given these requirements of unusual instructional skill, experience, and dedication, we would be surprised if these constitute a majority of today's online courses.

Even so, we see some signs that the 'floor of professional practice' is improving at a few universities that offer numerous distance education courses. There are some new internal consulting groups and workshops for prospective instructors. In some cases these are mandatory; however, they are more commonly discretionary. We have not examined the ways that these support resources work in practise. But, if they help participants to understand the communicational complexities of asynchronous text-based communication, they may help to raise the level of instructional and student competencies for effectively teaching and learning with new media.

This article reports on one case study; explicitly theorizing the conditions under which such courses are organized and taught is well beyond our scope. That is an important next step. Part of the theoretical analysis would have to examine the socio-technical complexity of the communication and computational support for the courses, and faculty and student abilities to work with and through them (Star and Ruhleder 1996; Kling 1999). Another critical part would include the political economies of the participating universities, such as the ways academic administrators are being encouraged to embrace Internet-enabled distance education as a new source of revenue (Carnevale 1999). Other elements would include an understanding of the conditions under which potential students take such courses, and the conditions under which faculty teach them. Most seriously, the necessary theorizing would involve the conjunction of these conditions, social processes and practices: the various ecologies of games (Dutton and Guthrie 1991; Dutton 1995) in which administrators, students and instructors come together in making Internet-enabled distance education programmes happen.

Noriko Hara
School of Information & Library Science
University of North Carolina at Chapel Hill
NC 27599-3360, USA

Rob Kling
The Center for Social Informatics
SLIS, Indiana University
Bloomington, IN 47405 USA

NOTES

1 An earlier and more extended version of this article, including more material on the study's background and methodology, is Hara and Kling (2000). More interview data are also reported in Hara and Kling (1999).

2 The first author is therefore referred to as 'I' in the text relating to observational descriptions.

3 B3002 is a pseudonym.

4 The following conventions are used in this: words appearing in ***bold italics*** represent what the informant was typing at the computer, while words proceeded by an angle bracket (>) represent what the informant saw on her computer screen.

5 SchMOOze University is a multi-user, text-based virtual university campus available world-wide via the Internet to enable people to meet online, have synchronous discussion and play games. It is designed as an English as a Second Language learner and is a MOO (abbreviation for Multi-User Dungeon Object-Oriented).

6 In the interviews reported in this article, 'I' indicates the interviewer, while the informants are represented by their first initials.

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