

Student Perspective in the D/L Process

A Student Perspective
on the
Distance Learning Process

Paul Wilmarth

UM-St. Louis

2000

A Student Perspective
on the
Distance Education Process

Introduction

One of the most basic and essential of all human activities is that of learning. From the beginning of recorded history it has been the ability to learn, and, perhaps just as importantly, to pass that knowledge to future generations, that has separated Man from every other species on earth. Learning, and hence education, is the essential ingredient in all human cultures that allows them to evolve and prosper. And while the need for learning and education has not changed, the subject matter and the methods of teaching and learning have changed as societies have changed.

In an earlier time it was perhaps only necessary for a man to teach his children the basics of farming and animal husbandry. With the industrialization of western cultures more knowledge was required in order to operate and maintain complex machinery, and, there was a larger body of workers that needed to be taught these skills. With the dawning of the so-called Information Age, an educated workforce was

more important than ever if nations were to remain competitive in an increasingly globalized culture. And today technology is transforming our world at such an accelerated rate, that the amount of new information that must be absorbed often seems staggering.

So, at the dawn of the 21st century traditional systems of teaching and learning are beginning to give way to new, but not necessarily better, forms of education. At the same time, the evolution of technology is allowing the education process to take on new and previously unimagined forms. One of those forms is the distance learning classroom.

Traditional classrooms, that is, those formal places of learning where students and teachers all gathered in the same physical space, have been the mainstay of most formal education systems in the United States since its inception. Distance learning environments, where students and teachers communicate from different places are now possible due to a convergence of communications and computer technologies

Then as now, students were motivated to learn for a variety of reasons, both personal and professional. And the typical emblem of success in the classroom has always been "the grade". And while there may be no standard in which to evaluate subject matter and whether or not a student actually learned that subject matter, the "grade" has always been perceived as an indicator of success or failure.

So, human beings are motivated to learn for a variety of reasons but those reasons can be viewed largely in terms of survival—survival of the individual and survival of the larger culture.

Description of setting

I wanted to observe how students operated within a distance learning class. That is, I wanted to know what it was like to be a student participating in a distance learning class; what the pressures were, how it was different from “traditional” classes, if it was better, or worse, and in what way. I knew that motivation in this class, just like in traditional classes, was simply to get through the class with an acceptable grade while at the same time learning the necessary information; but I wanted to understand what students went through to pass successfully through the process.

There are a number of studies (Keegan, 1996; Marland, 1997; Lockwood, 1995; Jaffee, 1997; and Brooks, 1997) that examine field of distance learning. Of these studies, most are anecdotal and describe the education process in terms of technology, administrative constraints and cost/benefit analyses. Brooks (1997) presents an interesting article out of the field of sociology and examines distance education as a social phenomenon and discusses a perceived shift in the

educational paradigm from one that is teacher centered to one that is learner centered.

There are also a few excellent and notable quantitative studies (Irons, Jung, and Keel, 1998; Irons et al, 1999), which focus on the learning process in terms of student perceptions: success, comfort with the technology, teacher interface. However, there are few (if any) studies that focus on the day-to-day challenges of these students. This study is an attempt to tell the students' story; to present those circumstances and challenges experienced by students in a distance learning classroom as they work through a semester-long course.

Because I am fortunate enough to be a distance learning technician at the University of Missouri-St. Louis, I was able to observe a group of individuals work their way through a distance learning class for an entire semester. The class I observed was a required graduate level nursing class: Philosophy of Nursing. The basic format of the class was student-led presentation of course materials (moderated by Kit Smith, the instructor), interspersed with questions and comments. There were also student presentations that featured basic information on the various philosophers covered in the course.

My responsibility was to make sure that the class ran with as few technical difficulties as possible, and to switch cameras and monitor sound so as to create an effective communication between my local site in St. Louis and two other remote sites.

Students sit in chairs at a long table (see photograph and sketch).

Students face two 30inch video monitors (one on each side of the room and an instructor's station between the monitors.

The instructor's station contains most of the switching hardware used during classes to send and receive video.

There is also an equipment rack located under one of the video monitors that houses equipment used to control sound, VCRs and some additional auxiliary features. There are two

working mikes in the room; one is a directional mike suspended from the ceiling directly in front of the

instructor's station and facing the students; the other mike is an omni directional mike that sits on the instructor's station. The only source of sound from remote sites is an

8"x18" speaker located on top of the receive TV monitor (see photograph). The room itself is small (15' x 25') and designed to accommodate only about 12-15 people comfortably.

There are three rows of tables, each capable of seating 4 or 5 students. The first row, however, is rarely used because it sits so close to the Instructor's station.

I chose this class for two reasons. First, I already had the responsibility of ensuring that this class ran well, and second, I am a doctoral student in the Department of Education at the University of Missouri-St. Louis and am keenly interested in technology and its application to higher education.

The class I observed met once a week on Thursdays from 8:30AM to 11:30AM in St. Louis and had five students. The instructor for the class was based in Kansas City, Missouri where there were six students. There was also another group of 2 students in Columbia Missouri. This meant that the class itself was held in three locations: St. Louis, Kansas City, and Columbia, and contained a total of 13 students. For most of the classes the instructor was physically situated in Kansas City; however, she did make one trip to St. Louis and one trip to Columbia during the course of the semester.

Although I was originally interested in the actions of all 13 students, I ultimately realized that I had to limit my focus to the five local students; the distance learning process is quite involved and complex and it was my feeling that a more narrow observation would yield a more revealing result. But this was also a limitation because my observations failed to document any of the interpersonal dynamics that evolved between sites as the semester progressed.

Because of the unique configuration of this class, and because there was no instructor present here in St. Louis, my permanent place for observation was at the instructors station in the front of the room.

(PICTURE of workstation HERE)

It was necessary that I sit here because the room was designed to be technically operated by whoever led the class, and all the camera and switching controls were located in the instructor's station (This is a basic configuration decision which impacts who controls incoming and outgoing signals. In this particular room it was decided that the instructor should control all signals; control could just as well have been sent to a "control room" outside the classroom). Also, the "send" monitor—the monitor that shows me what Kind of picture I'm sending to the remote sites—is located in the instructor's station. I needed to see that picture so that I could switch the camera to the different students here in St. Louis as they talked, or, switch the source I was sending remote locations from student camera, teacher camera, document camera, or data (this was all computer information the students had—usually in the form of Powerpoint presentations).

My restriction of movement in the classroom during observation was, I think, both an advantage and a

constraint. It was limiting because I would like to have seated myself "with" the students; that is, among them, and experienced the class from their immediate perspective. Instead, I sat at the instructor's station on a stool for the bulk of the classes that was 14 inches higher than the sitting surface of the student chairs. I occasionally sat in a student chair when a St. Louis student would give a presentation at the instructor's station; I noticed that there was a definite difference in the "feel" of the room: sitting higher gave me a feeling of control that completely evaporated when I sat in one of the lower student chairs. Also, sitting at the front of the room and sitting a few inches higher than everyone else, and, having all chairs facing me, gave my physical position a focus of assumed authority that I obviously did not have; perhaps this is one reason why it was so noticeable to me.

An advantage of sitting in the same place for every observation may be that it allowed for a consistent perspective while I maintained a low profile. That is, as activities went on around me, my perspective stayed the same and was a relative constant. This allowed me to focus on behaviors while remaining relatively inconspicuous; students often tended to disregard my presence all together.

When The Technology Works, It's Invisible

The ultimate goal of educators and their educational processes that use distance learning technology, whether explicit or implicit, is to create a learning environment that approximates the traditional classroom setting. That is, technology is used to bring educators and learners "close" enough to interact in ways that bring about desired learning outcomes. Television monitors, microphones, data ports, phone lines are just a few of these technical processes. When these systems work the way they are designed to work, the subjects using them are free to disregard the medium and do what they came to do—concentrate on the message and content of learning. When they fail to work, they draw attention to themselves and thus derail the very educational process they were created to enhance. In reality, the technology is not anywhere near perfect. As I will show, there are numerous instances of the medium "drawing attention to itself" and becoming very invisible. Additionally, even when the technology works flawlessly, human factors sometimes intervene and create disruptions in the communication process that would not occur in the traditional classroom environment. But while the goal of distance learning—that of seamless and completely invisible transmission of information—has not been reached, increasingly user-friendly hardware and software, along with decreasing costs and innovation, is allowing for an ever-increasing refinement of the process. Meanwhile, however,

students deal with the new technology environment in a number of interesting and adaptive ways. And while the means of achieving an education might be different, the ends are still the same—making the grade.

Because learning occurs primarily in two perceptual modes, visual and aural, it is a convenient way to classify student activity and remarks. Also, because there is specific technology that processes these two modalities separately, interesting dynamics are created in the distance learning classroom which could not occur in the "traditional" classroom.

Video (or, I can see you, can you see me?)

For a student the goal of any course of study is to obtain the required information, work with that information until it is in some sort of intelligible mental form, and then produce some kind of physical proof that he or she comprehends course content in such a way that is satisfactory to the instructor/facilitator of that class. The five students in this Nursing Philosophy class were no different. What was different, however, was that the instructor, and much of the information, was coming out of a classroom in Kansas City that was more than 300 miles away. After I had made sure the connections had been made to Kansas City and Columbia, the class started.

The typical greeting from Kit Smith was, "Good morning, St. Louis, can you hear me?" I had the camera set to wide angle so as to get into the picture whoever was in the room. Because of the nature of the video switching equipment, Kit could not necessarily see the St. Louis picture (all locations could see only one picture at a time; and the picture they saw was the last site that sent them an audio signal). This meant that the students in St. Louis had to talk or make some kind of noise before the instructor knew they were there. After a few weeks, this greeting became a ritual. Often, this was a time for typical information exchange: "How's the weather there in St. Louis, has anybody seen...?" This was also a time for exchanging housekeeping information as is typical of regular traditional classes. After these obligatory introductions the class is ready to start and problems inherent in a distance learning environment become apparent. During my first observation I was trying to figure out who the instructor was. Because she was in Kansas City, I had not met her or talked to her before the class:

The instructor must teach and operate the camera; for the first 30 minutes of the class the instructor speaks and is off camera; the camera is pointed at three of the students in the class; for a few minutes I think that one of them is the instructor, then I notice that her lips aren't moving.

I don't know if the Students here in St. Louis are aware that the instructor is not visible, but this situation, where the person speaking was somewhere off camera, was a common one, particularly early in the semester:

Marie asks me if there's any way to see the instructor. I tell her that there isn't unless she (the instructor) turns the camera on herself. KC doesn't have a tech operator; neither does Columbia. The instructor finally turns the camera to herself and we get to see her for the first time.

Sporadically, the camera was turned to the person speaking, but this was rather hit-and-miss:

It seems that Kit has completely forgotten to move the camera to each speaker when they talk. But then...it's hard to concentrate on what you're trying to say and worry about what the remote students are seeing.

During those first few classes the picture from Kansas City was very poor. This was primarily due to the classroom that they were transmitting out of. The room was small and not set up to be a distance learning room.

There are six students in KC, all female, one black, my guess as to their ages would be about the same as for St. Louis (35-50); I can't tell very well because the picture is very bad and the (camera) angle is high and to the side. Also, it's hard to see student's lips moving when they talk so it's hard to know who's talking.

During an extended student presentation the St. Louis students had to look at a static picture from Kansas City that was so bad that figures could barely be made out and

this was after our signals were accidentally switched from somewhere at Columbia:

There is a strange series of noises and then some different voices are heard. As sometimes happens, a completely different class has broken in on us...We hear disembodied voices talking about something that sounds like engineering or physics...finally the student in KC is back and appears ready to go. The picture is dismal; the camera angle is so high that we see mostly the top of her head. She has no visual aids and talks mostly from notes. The picture is contrasty with little detail in the shadows or bright spots.

Episodes like these serve to distract students from the objective at hand and tend to disrupt sustained concentration that is necessary in a class of this type. Also, the students in St. Louis (and Columbia) were unable to experience much of the interpersonal relationship-building activity that the students in Kansas City were able to experience. And, because building a relationship with the instructor is critical (particularly at the graduate level), I suspect that remote students feel at a disadvantage compared with their peers in Kansas City. In a personal interview with Karen, she told me about the difficulties she had had communicating with the instructor:

I wonder if she (Kit) treats the people in Kansas City differently than she treats us.

Whether or not this is true is irrelevant; the point is that the perception of inequity is there. A fluid accessibility

in interactivity with the instructor that is available to local students is simply not available to remote students.

There is also a problem with the picture of the two students we all receive from Columbia Missouri. It is very dark, contrasty and grainy. The picture is static and fairly far away so that the students occupy only a very small part of the picture:

Receive camera finally switches to Columbia; we see a very dark poor picture of two Asian girls sitting very close together in the middle of a very large room. We hear the girls say hello but the picture is so bad I can't see clearly who is talking.

I am aware of the importance of sending as good a picture as I can to the remote sites so I frame and zoom in on St. Louis students each time they talk, this gives the best possible picture to remote sites and the most visual information which is critical for good feedback. I think this compensates partly for a lack of real physical presence. Kansas city and Columbia don't seem to have good tech support early on in the course but they will get better as time goes on.

Another way to enhance communication through a camera is to know where the camera is and to look into the camera when you're talking to someone at the remote site. This seems a little awkward at first to most students but it is a skill that can be learned and used to advantage:

During the break I tell Doris about how, if she looks at the monitor with the camera on it, it

will appear that she is looking directly at the people she is addressing. She seems appreciative and begins to ask me questions about the technical stuff at the instructors lectern.

Then later:

Doris asks a question and this time looks at the monitor with the camera on it. She remarks later that she had no idea where the camera was in the room.

And still later:

Doris responds to a question from KC and forgets that I told her what monitor to look at, (when local students look at the monitor with the camera just above it, it looks to the remote sites as if they are looking right into the eyes of whomever he or she is addressing. This is an optical illusion, of course...But any way, Doris looks at the monitor across the room from the monitor with the camera on it and the remote view is of Doris looking away from the person she is talking to.

Audio (or, who talks first, and what's that noise?)

The medium is NOT transparent today!! Mike comes up to me and asks if our sound in St. Louis sounds as bad to the remote sites as theirs does to us—I tell him that I don't know. This is when I really begin to realize that NOBODY knows what the other site sounds (or looks) like. I sort of "grunt" in agreement that the sound is bad and he nods a visual "yes".

In a distance learning environment, it is critical that people see each other, and any other visual information that needs to be communicated. Given the state of the art in communication technology and given restrictions and constraints dictated by University policy, the video portion of the class went tolerably well. The audio component of

the class, a critical element of the communication process, presented challenges of it's own. The audio for this class was sent by two microphones in the classroom and received by one speaker located just beneath the student camera.

(PICTURE of mike/camera HERE)

All three sites are largely dependent upon the other two sites for the sound levels they receive. That is, St. Louis receives sound based on the level at which KC and Columbia send it. This can be too loud, too low, or about right. The first few classes required a bit of fine-tuning as the engineers sought the right mix. Here is an excerpt from the first class:

As soon as the class starts (it starts about 5 minutes late because of technical problems) Marie asks if I can turn the sound (coming from KC) up in our room. I tell her that I can't do it without shutting down the whole class for about 5 minutes.

The reason for shutting down the class is that I would have to interrupt the class, have everybody remain quiet, and retrain the microphones (mike "training" is an electronic process that prevents sound from looping through the remote classroom and going back to its source and thereby creating an echo). And sound is important for another important reason:

The instructor sees and hears SL and Columbia students only when they talk (the audio is used to electronically switch the video). The system is called a "multi-point" connection, as opposed to a "point-to-point" connection where the instructor is only (and continuously) connected to one remote site.

This all means that no site ever knows whom is seeing them. If St. Louis talks or makes any noise, KC and Columbia will have St. Louis on their screen until someone else talks or makes noise. This quality of not really knowing who sees you and how you sound to the other sites created a certain social tension which the students felt; going "off-line" relieved that palpable tension, as will be discussed later. For the most part, the sound got to where it needed to go with little trouble. There were times, however, throughout the class, when sound became distracting noise. Sometimes this was due to preventable causes, and sometimes not:

Kit comments that she hears "children noises" coming from St. Louis. Marie tells her that what she hears is a group of children from the day-care center on the south campus and that such a spectacle is common.

There are several instances of "noise" like this. Many days the doors to the classroom had to be left open because of the heat inside the room. Students, custodial employees, children, all added to the regular distractions of the class:

Door has to be open so it's noisy. Rolling carts go by... Little kids go screaming by.

Noises from the hall prompt Marie to close the door.

Children go by on a 5-kid stroller.

Custodial people have been shuffling by with cleaning equipment and trashcans on wheels.

Lots of little kids walking by today. I suppose that's because it's raining outside and they can't go out.

There are also those kinds of noises created by the students themselves. These are noises that are inevitable in any group of people. Technology, however, often amplifies and exaggerate these sounds. First, there are sneezes, coughs and other reflexive noises that seem innocuous to those present but can be amplified and very distracting to remote sites:

I hear a very loud disembodied voice, apparently from KC...again I hear KC voices, then a single voice. Short "jabby" interjections "yes...uh huh...mmmm...ok" tend to jumble the flow of conversation. I don't know if this is perceived at the remote sites. Edna is still coughing/sputtering and blowing her nose.

Any sound in the classrooms will be picked up by the microphones; and the loudness of the sound will be largely determined by how close the sound source is to the mike. Thus, a sound that would be ignored in a regular classroom (such as the movement of papers) will sound like a loud roar

to a remote site if those same papers are moved across a table-top microphone:

[student] in Columbia puts her papers on the mike causing a loud scraping sound. This is because the mike is a tabletop type sitting directly in front of [the student] on the table.

There were also many instances of "whispers" from the two students in Columbia that sounded very loud and were quite distracting to the St. Louis students. Again, this is because Columbia students had no idea how the microphones picked up and amplified the sounds they made.

Perhaps the most ubiquitous and systemic sound problem for the class was one of "sound delay". This delay is created purposely by the engineers who designed the DL system; this is why: Audio transmission in DL classes could happen immediately and without delay, just like in a regular phone conversation. Video, however, must be compressed, coded and decoded, given the current limitations of the UM video system. Since this coding/decoding causes approximately a 3 to 5 second delay, engineers delay the sound so it doesn't get to the remote site before the video. This adjustment does have the positive effect of creating a close audio/video synchronization (an effect deemed absolutely necessary by many distance learning participants). The undesirable effect, however, is that there is a 3 to 5 second delay before the students at the remote sites hear you and another delay before you hear their response. This

means that the normal rhythm of interactive communication is completely destroyed. My field notes are full of numerous incidents where sound delay caused a disruption in the interactive process:

The distance learning environment proves to be inadequate when human interaction approaches "natural" speed. People drop the flow of back-and-forth communication, talk over each other and lose focus. Then, a whole host of conditioned "polite" responses kicks in: people don't want to talk because they're afraid of being rude and cutting someone off. Normal face-to-face communication is like two jugglers tossing pins to each other; timing is critical and all actors must act in a prescriptive way in order to achieve desired results. DL can't bring people close enough quick enough to allow for the flexibility required for complex interaction that would seem effortless in a face-to-face situation.

And although the students themselves did seem to tolerate this timing problem and work it into their interactions, particularly as they gained experience as distance learners, the sound delay remained a significant barrier to efficient communication

During the 3rd session I make the following note:

Edna asks question about what she sees in Columbia and mumbles under her breath, "this is not going to work."; Walk on audio ("pardon me? hello? I didn't hear you").

Numerous data entries describe how a St. Louis student would start to speak at an appropriate opening on the conversation flow and then notice that first speaker just keeps on talking. I think that this made students feel rather self-conscious at first and may have discouraged them from

participating. This situation did, however, ameliorate as the semester went on:

Edna tries to talk again but gets shut out. There is always a sense of embarrassment when this happens. You start talking and the other keeps on talking—you're left with your words just sort of hanging out there with no place to go.

Later, during a break, when the privacy switch was on and we could not be heard by the remote sites, Karen and Edna made the following comments:

Karen: The sound is terrible... We just can't have a discussion because I worry about talking when KC is trying to talk, but then I just wait...If it was just us, we could bounce ideas off each other, but we can't do this with them [KC and Columbia]. It's like pulling teeth getting those people to talk...it's all so nebulous.
Edna: and I can't understand those ladies at all! And they can't understand us.

Here, Edna was referring to the fact that both Columbia students were Asian, and had thick accents that made them very difficult to understand.

While students seldom make note of any particular equipment in the room (most, like Doris, didn't even think about where the cameras are), the privacy switch was discovered early in the semester and it's significance was understood immediately. When the privacy switch was in the "off" position, all student comments could potentially be heard by any of the remote sites and the instructor. Students soon learned to glance at the privacy switch (which glowed red when it was "on") before vocalizing in ways that might be inappropriate if they were heard outside their own

classroom. This sometimes included criticisms about the instructor and the class, but just as often it was self criticism as demonstrated by Mark after one of his presentations. I noticed how good he seemed to be doing and how confident he sounded, then this:

As soon as the privacy switch is turned on Mark sort of deflates, puts his head down and says, "somebody give me a gun!!!... I feel so stupid!!

Students soon learned to gage their conversation according to the privacy switch status. I always kept it off during breaks and before and after class sessions. "Can they hear us?" was a much-asked question through out the semester.

Towards the end of the semester I arranged with the instructor to conduct a short session with all the students of the class (St. Louis, KC and Columbia). During this time I asked some questions about their personal perceptions and feeling concerning this class. My questions were general and solicited remarks about their likes and dislikes in this distance learning class. Most remarks concerned sound; some dealt with the visual component of the class:

The audio delay is a problem because we don't know when to speak and don't want to interrupt others

Sometimes the quality of the sound makes it hard to hear others.

I wish we knew how we sounded to the other sites. The teacher can't be in two places at the same time.

It would be so much better if we could see everybody at the same time.

While giving a presentation, it would be good to be able to see facial expressions; I don't have any idea if [they're] following me or not.

Thank goodness for that privacy switch.

To a large extent these comments highlighted the existing limitations inherent in UMSL's (and most other) distance learning system(s). Continuous presence, the capability of allowing all sites to see all other sites at all times, is a real possibility for UM distance learning classes in the near future. Sound systems keep getting better and more able to channel sound while eliminating noise.

But even when sophisticated technology works perfectly, the human element remains a constant. Human beings are sensitive to their environment. Physical closeness (or lack of it) colors all interactions. Conditioned through eons of evolutionary history, we are social animals and obtain much of our most vital perceptual knowledge through direct experience. Microphones, speakers and TV monitors, while serving a purpose, do not carry the psychological or emotional impact of direct experience with others.

None of the students in this Nursing class (here in St. Louis) chose to be in this class because they wanted to be in a "distance learning" class. All were here because it was a required class in their degree program and this was the "least-inconvenient time" to take it. Karen drove in from Bloomington-Normal every week, and Edna drove to St.

Louis the night before from Tennessee. The rest of the students were local but each had specific reasons for taking this particular class. Distance learning technology was the only thing that made it possible for them to satisfy this course requirement, short of driving to Kansas City or Columbia

So, ultimately, UM provides, and students "put up with" distance learning technology because it provides an avenue for education and exposure that is available no other practical way. In this sense, it is the lesser of two evils. Indeed, technology does have the potential of doing what it does best in the distance education arena—magnifying and extending the complicated process of human communication; unfortunately it also has the potential of magnifying human error. But never the less, this process is a vital one for all cultures and societies. Studies like this one point to the flaws existent in current systems, but, more importantly, by pointing out the human needs in the education process, they serve to guide us in the proper direction as communication technology changes, evolves and plays an increasingly significant role in our lives.

References

Brooks, M. (1997). Beyond teaching and learning paradigms: Trekking into the virtual university. Teaching Sociology, 27, 1-14.

Irons, L. R., Jung, D. J., & Keel, R. O. (1998). Interactivity in distance learning: A study of telepresence in university virtual classes. (unpublished report submitted to the Information Technology research Committee at the University of Missouri-St. Louis).

Irons, L. R., Jung, D. J., & Keel, R. O. (1999). Interactivity in distance learning: Network expedience and transparence in virtual classes. (unpublished report submitted to the Information Technology research Committee at the University of Missouri-St. Louis).

Jaffee, D. (1997). Asynchronous learning: technology and pedagogical strategy in a distance learning course. Teaching Sociology, 25, 262-266.

Keegan, D. (1996). Foundations of distance education. (3rd ed.). New York: Routledge.

Lockwood, F. (ed.). (1995). Open and distance learning. New York: Routledge.

Marland, P. (1997). Towards more effective and open distance teaching. London: Kogan-Page Ltd.

Add privacy switch part