



The Social Dimension of Distance Learning by Interactive Television: A Qualitative Study

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This qualitative study examined instructors' and students' perceptions of social relationship in distance learning. Interview and observational data were collected and analyzed to generate theories. Convenient sampling was used. Factors influencing a sense of distance were analyzed. Findings revealed greater difficulty establishing a social relationship in interactive television environments than in face-to-face environments. Both instructors and students found it important to build a personal connection between them. Instructors' preference for course delivery and building rapport with students was to travel and teach at the remote sites. The study implies that faculty and administrators should seriously consider, in their decision-making, both the gains and losses of interactive television as a delivery format.

Keywords: distance learning, interactive television, social relationship, qualitative study.

The past three decades have witnessed increased use of distance learning in higher education. The latest statistics by the National Center for Education Statistics (Parsad & Lewis, 2008) show that 66% of American higher education institutions offered distance learning courses, with an estimated 12.2 million enrollments (registrations) in the 2006-07 academic year. The percentage in public institutions was even higher: 97% in public 2-year institutions and 89% in public 4-year institutions. The report also indicates that the most frequently cited reasons for offering distance learning courses were to provide access to college for students who otherwise would not have access, to make more courses available, and to increase enrollment. While these might be legitimate reasons, researchers are also challenged to explore how teaching and learning manifest in distance learning. Fundamental questions include how do instructors teach and how do students learn in distance learning? How is distance learning the same as, or different from, traditional

face-to-face learning? This study is an attempt to tackle these questions.

Distance learning has existed for one and a half centuries, from the correspondence courses in the beginning to the online courses today (Mood, 1995). Although today's distance learning takes various formats, the most frequently used arrangements in the United States include online courses (synchronous and asynchronous), two-way interactive video, and one-way pre-recorded video (Parsad & Lewis, 2008). Interactive Television (ITV), also known as interactive video or videoconference, connects several sites by audio and video links, so that one instructor can teach to a few sites at the same time. ITV is interactive and synchronous: it is capable of real-time, two-way communication between the instructor and the student, and among the students at different sites. ITV is advantageous over other distance learning formats in that it may greatly enhance teacher-student interaction (e.g., Mash et al., 2006; Whithaus & Neff, 2006). Among the different formats of

distance learning, ITV resembles face-to-face learning the most.

What, however, is the social dimension like in distance learning in general, and ITV in particular? How is the social relationship in the ITV environment? More specifically, how do instructors and students establish a social relationship across sites? How is the social connection in ITV, as compared to face-to-face learning? These questions are important ones, although the answers to them are not clear yet; therefore, the researcher chose to investigate them in this study. The questions above are the research questions and they guided this study. This paper is therefore about the closeness, or proximity, between the instructor and the student, and among students across sites. It is about the teacher-student relationship, with a focus on immediacy and affinity. It is also about closeness and distance, connection and detachment. This study will contribute a better understanding of the phenomenon of distance learning (therefore will add to knowledge), help instructors and students create more desirable teaching and learning experiences, and help policy-makers make informed decisions regarding distance learning.

Literature Review

Theories in distance learning are still developing. Theories developed earlier, such as the theories of independence, autonomy, and industrialization (see Keegan, 1986) do not apply to ITV. More relevant to ITV are the theory of interaction and communication, and the theory of equivalency. The theory of interaction and communication (Holmberg, 1986, 1989) emphasizes the importance of didactic conversation and two-way communication in distance teaching and learning between the learner and the tutor. Holmberg's ideal was to give learners a more satisfactory learning experience and make distance learning resemble face-to-face, group-based learning as much as possible. It is not clear how the theory will work in the ITV environment. Simonson and his colleagues (Simonson, 1997, 1999; Simonson, Schlosser, & Hanson, 1999) proposed the equivalency theory, which states that "distance education's appropriate application should provide equivalent learning experiences for all students—distant and local—in order for there to be expectations of equivalent outcomes of the educational experience" (Simonson, 1999, p. 7). It is not clear, however, in what way the remote and local learner's experiences are to be equivalent, or how the equivalent value of the learner's experiences is to be judged.

Among studies of ITV, few have followed the qualitative paradigm (e.g., Kelsey, 2000; Swartz & Biggs, 1999). Quantitative studies of ITV mainly address issues in three areas: student achievement, student attitude and satisfaction, and teacher-student communication and relationship. It is not clear whether the ITV format has an impact on student academic achievement, although some studies (e.g., Huff, 2000; Silvernail & Johnson, 1990)

reported results of no significant difference in achievement between ITV students and campus students.

Regarding student attitude and satisfaction, it is consistent in the literature that students prefer traditional face-to-face instruction. When the same group of learners evaluated the same instructors' instruction, they rated the face-to-face portion significantly higher than the ITV portion (Thyer, Artelt, Markward, & Dozier, 1998; Thyer, Polk, & Gaudin, 1997). Some students followed the instructor to whichever site the instructor was teaching face-to-face (Biner, Barone, & Welsh, 1997). Some students requested that the instructor visit each site (Gerber & Shuell, 1997), and some even requested that the instructor rotate to teach among the sites on an equitable basis (Milan & Shuell, 1996). On a course evaluation of the same instructor teaching the same class twice, ITV students rated the instructor's teaching effectiveness significantly lower than the on-campus students did on 12 of the 13 items on a course evaluation instrument, and on the instructor's overall teaching effectiveness (Fetzer, 2000). Students generally accept ITV as a viable alternative delivery method, but would choose traditional course delivery if they were given a choice. Only a very small percentage of the students thought ITV instruction was as good as the typical instruction on their campus, and a very large percentage of the students would rather take a regular class than an ITV course (Gallagher & McCormick, 1999).

Regarding teacher-student communication and relationship, research shows that the teacher-student relationship is a critical element of student learning (see Chandler & Hanrahan, 2000), and is important for effective learning (see Frymier & Houser, 2000). The teacher-student relationship can be enhanced by immediacy behaviors, such as eye contact, facial expressions, tone of voice and gestures. Immediacy behaviors enhance the closeness and nonverbal interactions between people (Baringer & McCroskey, 2000). A study (Frymier & Houser, 2000) shows that both verbal and nonverbal behaviors have positive impacts on student learning and motivation to learn. A comparative study (Freitas, 1998) finds different student perceptions of instructor immediacy in conventional and ITV classes. Taking the same course by the same instructor, students enrolled at the face-to-face section perceived higher rate of instructor *nonverbal* immediacy than students enrolled at the distance learning section.

The researcher identified the following trends in his review of the literature. (1) Research into distance education in general, and ITV in particular, has primarily taken the quantitative approach, and there have been few empirical qualitative studies in this area. (2) Studies of ITV have focused on student evaluation of courses, student achievement, student attitude and satisfaction, and very few have examined the teaching-learning process and the instructor and learner's lived experiences. (3) Some studies (e.g., Carter, 2001; Chandler & Hanrahan, 2000; Mottet, 2000) reported difficulties that ITV instructors and students

encountered, but few have studied these difficulties systematically and how these difficulties influence teaching and learning. This study is an attempt to fill these gaps by doing a qualitative study with a focus on the social dimension in the teaching-learning process and the instructor and student’s lived experiences in the ITV environment.

Methodology

This study aimed at exploring the teaching-learning process in the ITV context and the specific experiences of participants. The exploratory and descriptive nature of the study therefore determined the qualitative paradigm as more suitable for this purpose. As Marshall and Rossman (1995) note, the qualitative paradigm is especially suitable for a study “that is exploratory or descriptive, that assumes the value of context and setting, and that searches for a deeper understanding of the participants’ lived experiences of the phenomenon” (p. 39). In essence, the social interactions and contextual factors embedded within the teaching-learning process were relevant to the decision to the research design.

The fieldwork for the study was conducted primarily at a distance learning center at a public research university located in the northeastern United States. The center operated about 10 ITV courses each semester, among other duties. the researcher also observed students at distance sites including a secondary, remote (receiving) site located about 15 miles north of the host institution. Fourteen people were interviewed. Instructors, students, and remote sites were assigned pseudonyms for the purposes of confidentiality.

Research data were collected using observation and interview. Specifically, the researcher formally observed five ITV courses—two as participant observer at a remote site and three as non-participant observer at the local site. Courses were also observed in their entirety (i.e., the researcher attended all the class meetings of each course, except for one). A summary of the five classes observed is noted in Table 1. All classes were at graduate level and used fiber optic connection across sites. One class was in Library Science, one in English, and three in Education. The classes were mainly lecture based, although some group activities were incorporated. The five classes were all that was available for observation and the researcher could manage. Observations of instructors and technicians were conducted primarily at the local site, and observations of distance-learning students were primarily at the remote site. However, when at the local site, the researcher also observed distance-learning students’ activities on the monitor, and similarly, he also observed instructors’ and technicians’ activities when he was at the remote site. Initially, a broad and holistic approach was taken to events and behaviors. Later, he focused on a few categories developed during an earlier pilot study, based on the constructivist theory of learning (Shuell, 1996).

Throughout the process the researcher took notes and brief comments while observing, and immediately afterwards (the same day) completed detailed field notes to preserve fresh memory of events (Emerson, Frets, & Shaw, 1995). The observations enabled the researcher to see how instructors and students interacted across sites and how they built a social relationship.

Table 1

Classes Observed

INSTRUCTOR	FIELD	RESEARCHER’S ROLE	ENROLLMENTS
Dr. Black	Education	Participant Observer	0 at Home, 4 at Norwood, 13 at Allentown, 12 at Columbia.
Dr. Schindler	English		
Dr. Bacon	Library Science	Non-participant Observer	20 at Home, 12 at Bata.
Dr. Rousseau	Education	Non-participant Observer	10 at Home, 3 at Greenville.
Dr. Moore	Education	Non-participant Observer, Operator	8 at Home, 1 at Greenville.

The purpose of the interviews was to obtain participants' perspectives on the nature of teaching and learning in the ITV environment, and to learn about the meaning constructed from their personal teaching and learning experiences. Convenient sampling was used. A total of 6 instructors, 5 students, and 3 technicians were included in the interviews, which lasted approximately 60 minutes each. The technicians were included because they were able to offer a unique perspective on the nature of social interaction across sites; they served as the eyes and ears for the remote-site students. Both unstructured and open-ended questions were used in the interviews. The researcher told the interviewees the topics he was interested in and let them frame and structure their responses. Interviewing techniques used in the study included those suggested by Seidman (1998), such as avoiding leading questions, asking participants to tell a story or give an example, keeping participants focused and asking for concrete details, and so on. The interviews informed the researcher of how the participants perceived the nature and quality of the social interaction and relationship across sites.

To maintain data quality, all individual interviews were recorded on audiotapes and later transcribed verbatim. During the interviews, the researcher asked participants about the things he observed to verify his observational data (i.e., member checking). Observational data were then compared to interview data in order to identify consistencies and inconsistencies among emerging themes. All measures taken helped ensure the accuracy of data and credibility of results.

As expected in qualitative methodology, data analysis was on-going and simultaneously conducted during data collection. While performing initial analysis, the researcher adjusted the data collection strategy and focus. Upon leaving the field, more substantial data analysis was performed. This procedure is consistent with the views of Marshall and Rossman (1995) who pointed out, "Data analysis is the process of bringing order, structure, and meaning to the mass of collected data... Qualitative data analysis is a search for general statements about relationships among categories of data; it builds grounded theory" (p. 111).

Microsoft Excel was used to store, organize, retrieve, and code the textual data collected from interviews and observations. After reading the data as a whole (twice), the researcher placed data in Column A (first column from left), and did open-coding in Column B. Open coding is typically the beginning of meaning-making. The question in mind is, "what's going on here?" He placed each data chunk into a cell in Column A, and attached a code word in Column B. He also used focused coding of selected categories, and placed code words for this purpose in Column C. He then used Column D to store code words for the third level abstraction. Memoranda were written continuously and stored in Column E. He also assigned a

document ID and a row number to each data chunk, so that when he retrieved data from a category, he knew where the data originated, and could go back to the context for further consideration.

Findings

Four categories emerged as relevant to the study, that address the complexities involved in establishing and maintaining social interactions within distance learning. Among these were factors related to (1) instructors' perceptions of interactions with students, (2) students' perceptions of the class in general (including instructors' sense of care), (3) the sense of distance created within the setting, and (4) teaching at remote sites. An overview of salient findings for each of the areas mentioned follows as related to the evidence gathered.

Instructors' Perception of the Social Relationship

How did the instructors feel about their social relationships with students at remote sites, as compared to their relationship with campus students? Generally, participants felt less connected with students at remote sites. Participants reported that it took them longer to get to know the students, and that they did not feel they knew the students well.

Meeting someone through video is, after all, different from meeting someone in person. As one ITV instructor commented, "When you see them (on the monitor), you don't really see them" (Zhao, 2002). Students typically looked different in person than on the monitor as did the instructors. As a result, instructors felt less connected with students at remote sites. As Dr. Jones, one of the instructors the researcher interviewed, noted, "In general, I felt less of a connection, less of an emotional connection, with the students through the video."

Dr. Rousseau, another instructor in the study, echoed Dr. Jones, saying that he had a closer connection with the students on campus, and that those at the remote site wished they could be at the host site with the instructor and the local students. Dr. Rousseau's experience further demonstrated the difference between video communication and in-person communication. (In ITV the student's body language, such as nodding of the head and facial expressions, got blurred on the screen, and the instructor could not maintain eye contact with the students.)

Due to the nature of video communication, it was more difficult for the instructors to build a social relationship with students at the remote site. In the class on diversity in education taught by Dr. Jones, she and her students explored some controversial issues such as children raised by gay couples, which required her to create a close relationship with students, and among students enrolled in the class at different sites. However, it was difficult for Dr. Jones to do so through ITV, though she worked hard to manage the process. In her words, "I think that is a lot harder actually in distance learning. I think you have to work at it. I found that I had to work at it harder.

So, for instance, I don't feel like I know the students very well in the distance."

It took instructors longer to get to know students at the remote site than it did to get to know those on campus. Another instructor in the study, Dr. Schindler, taught a literature course where all students were at the remote sites. He had taught the same course many times before to students on campus. Dr. Schindler said he got to know students on campus better and was able to build a personal relationship with them very quickly. He indicated further that, in the face-to-face setting, the class appeared more relaxed and had much more joking around. Dr. Schindler stated that he got to know everybody by the third or fourth week in a regular class with 50 students. Dr. Schindler added that he knew who the students were and knew them by name. In contrast, with the ITV class, Dr. Schindler got to know only the students who presented themselves and made themselves known, which represented a small portion of all students enrolled in the class. Also, there were a number of students that he did not know by the end of the semester. Dr. Schindler was still trying to learn the names of the students at the very end of the semester, which indicated how difficult it is to know and build rapport with students through the video. Although he had 30 students in total, the class met for an hour and 15 minutes each week and he made much effort to learn the students' names, he still did not know them.

The instructors believed that a better relationship would help students with their academic studies and professional development. The students would engage more in the class, perform better, and achieve more if they felt that the instructor knew them, cared about them, and was interested in them. They would be more likely to ask for guidance regarding professional issues, such as whether they should apply for a particular job.

To summarize, in ITV the instructors communicated with students at the distance site through ITV monitors, where the instructor could not have a visual fix of students' faces, and student immediacy behaviors were lost. So, the instructors felt less connected with students at these sites, and it was more difficult to establish a social relationship with the students involved although instructors tried harder to do so.

Students' Perception of the Social Relationship

Compared to students at the local site, those at the remote site had many disadvantages in connecting with the instructor. Students at the local site could interact with the instructor informally before and after class, and during the break, and in class they could exchange facial expressions and informal audible responses with the instructor, which were not possible for students at the remote site. Also, students at the local site received more of the instructor's attention than those at the remote site. Students at the remote site were not happy that instructors did not know their names. Students wished the instructor would know

them better, or at least know their names. Students also reported that they felt "detached" from the classes, and perceived ITV classes as "impersonal." The lack of rapport and instructors' knowledge of students' names appeared to negatively affect how students were served, which was illustrated in the case of Katy, a student participated in the study. Katy asked an instructor to write her a letter of recommendation for her job hunt. The instructor said she would write the letter, but stated that she did not know Katy that well, because they only interacted with distance learning.

While students at the remote site knew each other *within* their sites, they did not interact *across* sites, except for the few students who always spoke up. The four students interviewed at the remote site were enrolled in a cohort of 30 students, which spread across three locations. The students had been taking the same classes for about two years, but they still did not know the names of some students at other sites. Students in this case also developed a "them-us" perspective, in which they considered peers at the same site as "us", and those at other sites as "them." Students developed this group identity and referred to people by site name instead of individual names.

Students at the remote site believed that going to ITV classes was like watching TV at home. Students also reported that it was like watching somebody else's show on TV when instructors seemed to be teaching to students at the local site only. One instructor used the same analogy, "Let me give you an example. I love rock music. Watching the Rolling Stones on HBO is not the same as being at a Rolling Stones' concert (laugh)." Similarly, students found it difficult to relate to people on the screen, and they would rather sit with the instructor face-to-face. Students reported feeling detached to the ITV classes.

Students at the remote site also reported feeling detached from the University and some of them did not want to attend the commencement. Students stated they would "feel out of place." Although their diplomas were issued by the university, students rarely visited campus and had primarily attended school at the ITV receiving site. As a result, students at the remote site did not feel connected to the university, which was further aggravated by the fact that they did not receive much support from the university. Students also believed that they were neglected at times by the instructors. Learning at a distance was not just about how far away they were physically from the university; sometimes students just felt so far away from everything. Students did not receive direct feedback from instructors or advisors, and they had to fall on their own group for support.

Echoing the instructors, the students did not think the instructors knew them. Students perceived that students at the local site had a closer relationship with the instructors than they did. The students believed that their personal lives were connected to the teaching-learning process, and

instructors had to know them in order to understand them--understand what they said in class as well as what they wrote in the papers. They believed that a better relationship with the instructor would create stronger rapport that would lend purpose to their studies and facilitate their interest in the course content.

Sense of Distance Created

Instructors for ITV were separated from students at the remote site by physical space and could not reach them face-to-face. The physical distance therefore created a sense of distance and disconnectedness. In campus classes, instructors and students were able to maintain a physical proximity. In contrast, students at ITV remote sites were spread across a few locations and only appeared on TV monitors in distant images; thus, the physical proximity was missing. Due to the physical proximity, students at the local site could communicate better with instructors, and therefore could connect better. Students at the remote site had a disadvantage in this respect.

The distant image of the students further created the sense of distance. The wide-angle cover shot of the students made it difficult for instructors to recognize individual students, and students' nonverbal responses were also lost. The wide-angle cover shot of students made the instructors feel distant and removed. This process further created a personal and psychological distance. In the cover shot instructors could not see students clearly, and could not have a visual fix of the students. Students could not have close-ups of their peers and, in one instructor's words, "eye to eye, gazes into gazes." The cover shot also made students feel distant and disconnected--as if they were invisible to the instructor. As a result, students believed they could go off task without being found and participated nominally in the class to obtain credits.

Maintaining eye contact is necessary for people to connect with one another. However, participants could not maintain eye contact through ITV, which is an intrinsic limitation of the ITV system. Not being able to keep eye contact influenced participants' feeling distant and disconnected. Because students did not perceive the instructor as talking to *them*, they did not believe in the need to listen actively to the instructor. The fact that instructors and students at remote sites did not have opportunities to interact informally before or after class, or during the break or group work time also contributed to the sense of distance.

Teaching at Remote Sites

How can a better relationship be built between the instructor and the student in ITV? Having instructors teach at remote sites proved to be an effective way to achieve this goal. Most of the time the instructors taught at the host site and students at a distance received instruction at remote sites. Occasionally, some instructors traveled and taught at each remote site. Of the six instructors interviewed, two (Dr. Rousseau and Dr. Jones) taught at the remote sites. Instructors taught at remote sites to connect with students

taking classes from a distance and to provide them more personalized attention. In addition, instructors gave students at remote sites a chance to pursue off-camera conversations where they could ask the questions that they were reluctant to do in front of the whole class.

Dr. Jones ended up teaching more sessions of a class at the remote site than at the local site for several reasons. First, she had two students at the host site and 27 at the remote site. There were also technical difficulties connecting the two sites and the remote site camera could not cover all the students. As a result, microphones were not available to all students. For this reason, Dr. Jones drove to the remote site, which was 60 miles away from campus. She also taught more often at the remote site than at the local site. Dr. Jones preferred this approach so that she could interact face-to-face with the 27 students at the remote site. She also believed it essential to establish a relationship with the students, and she believed the face-to-face format would help accomplish this goal. In her case, distance learning resulted in driving the 60-mile distance every week. Dr. Jones felt compelled to do it "for the students' benefit" because, otherwise, they would not receive the full benefits of the class and would not be as invested, an outcome that would not meet her expectations.

Students at the distant site preferred that instructors teach at their sites. The four students that the researcher observed at a remote site talked excitedly about how great it was when they had the instructors on site, with them face-to-face. Students also remembered who went to teach at their site and who did not, and expressed their resentment to the instructors who chose not to come out. When students had an instructor coming, they brought in food for them, "trying to make them feel welcomed because they *did* come out and it was nice for them to come out to meet with us."

When Dr. Jones went to teach at the remote site where the researcher observed, students perceived her as a very personable individual who really cared about them and wanted to know students. The students enjoyed seeing the instructors "from a different view," as one student put it, and believed the instructors looked differently in person than on TV.

Students also developed a better rapport with Dr. Rousseau when he taught at a remote site. One student said she had conversations with the instructor during the break and could communicate through nonverbal means, which she thought was very much a part of "language" that is often underestimated. Students eagerly exchanged stories with Dr. Rousseau and "got to know him" a little better instead of seeing only a face on the screen.

Teaching at distance sites took greater effort on the part of the instructors. Students wished all the instructors did so, at least once, but most instructors did not. For those who did, instructors did so for the students' benefit by giving those at a distance additional personal attention and the opportunity for off-camera talks. The instructor and

students got to know each other better from informal interactions, which made students feel more connected with the instructor and the course. Students also developed a better rapport with the instructor. Overall, teaching at remote sites was the best way for the instructor and students to connect.

Conclusion and Discussion

Instructors and students in this study found it more difficult to establish social relationships in the ITV environment than in face-to-face environments. Several factors contributed to participants' sense of distance and detachment, which included the physical distance between the instructor and students, the poor video quality of the students and the lack of eye contact and opportunity for informal interaction. Both instructors and students believed it important to have a personal connection between them in order for the teaching-learning process to be meaningful. Students' personal lives were also connected to teaching and learning, and the instructors needed to learn about their students to better understand them. Findings indicate that stronger rapport with instructors might help students engage in learning and achieve more in distance education. The best way for instructors to connect with students in this case was to physically travel and teach at the remote sites.

Social constructivist psychology highly values the role of interpersonal relationship in teaching and learning. In their work, *A Vision of Vygotsky*, Wink and Putney (2002) note that, from a Vygotskian perspective, "learning takes place first on... an interpersonal plane, through interaction with others, then move to... an intrapersonal plane, as concepts are internalized by the individual" (p. XXI). They also note that "(t)he notion of *social* is key to the work of Vygotsky. In terms of learning and developing, one sense of *social* incorporates the idea of interpersonal relationships" (p. 60). Vygotsky "acknowledged learners as interactive agents in communicative, socially situated relationships" (p. 62-63). Similarly, in *My Pedagogic Creed*, Dewey (1897) also contends that the educational process is both psychological and sociological. Thus, we understand that social relationship is a critical element in the teaching-learning process, and the implication is that instructors need to build rapport between the instructor and the student, and among students across sites, which requires that all parties interact with, and get to know, one another. The teacher-student relationship can be enhanced by immediacy behaviors (Baringer & McCroskey, 2000); however, distant learning by ITV lessens the likelihood that these behaviors will be captured, transmitted, and perceived by people at other sites—at least in ways that contribute to the social dimension inherent within teacher-student relationships. This finding is consistent with the literature (e.g., Balkin, Buckner, Swartz, & Rao, 2005; Mottet, 2000). In a 153-subject study, Mottet (2000) reports that instructors' inability to perceive students' nonverbal responses is related to their impression of students, their

perception of teacher-student relationship, and their willingness to teach in the ITV classroom as opposed to the face-to-face classroom.

Studies (e.g., Frymier & Houser, 2000) show that the teacher-student relationship influences student learning both directly and indirectly. Students' attitudes toward the teacher and the content (affective learning) influence their cognitive learning. A closer teacher-student relationship facilitates affective learning, which in turn enhances cognitive learning. Instructors and students in this study held similar beliefs. Unfortunately, neither the instructors nor the students were satisfied with the social connection between them, and they wished they had a better connection and relationship. The ITV system did not help much in building the connection and establishing the relationship. Gillies (2008) reports similar findings. ITV was inferior in this respect as compared to the face-to-face format.

In this study both instructors and students perceived it highly beneficial that instructors travel and teach at remote sites. This is also documented by other researchers (e.g., Gillies, 2008). To compensate the inherent limitations of the technical system, instructors should travel and teach at remote sites when feasible. Although it could be expensive, educational administrators should balance the benefits and the costs of doing so.

This study adds to knowledge on distance learning by revealing the inner working of the social connection across sites in ITV and the factors that contributed to the difficulty in establishing social relationships in this environment. This study confirms that both instructors and students highly value the connectedness, and that ITV was less able to support it in comparison to face-to-face instruction. By examining participants' lived experiences, this study provides empirical evidence for similar findings in survey studies. This study has implications for practice and policy, which faculty, administrators, and policy-makers should all consider. At the practice level, when a course is considered for delivery by ITV, the nature of the course should be examined: is it knowledge-based or performance-based? A course on collective bargaining negotiation skills, for example, is not suitable for ITV because of the level of action that it entails. Is social relationship a critical factor in student learning? A course on diversity studies, for example, requires that students are comfortable discussing in class some sensitive issues, such as gay marriage. At the policy level, as more and more higher education institutions rush to distance learning at a time of increasing financial austerity, the strengths and limitations of various distance learning formats must be considered. The author recommends that face-to-face delivery should be chosen over ITV for the maximal teacher-student connection, and that ITV should be chosen over asynchronous distance learning formats for its capacity in building relationships across sites through real-time audio and video links.

This study has a limitation: the researcher observed some classes as a participant observer and other classes as a non-participant observer, and this difference in way of observing can cause different viewpoints. This study focused on affective learning in ITV, not cognitive learning. Future research should investigate cognitive learning in ITV in comparison to face-to-face

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