

2008

# A study of instructional strategies that promote synchronous dialogue online

Shelley Stewart

*University of South Florida*

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A Study of Instructional Strategies that Promote  
Learning Centered Synchronous Dialogue Online

by

Shelley Stewart

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of Secondary Education  
College of Education  
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Date of Approval:  
May 1, 2008

Keywords: distance learning, web-based course systems, interaction,  
transactional distance, online teaching

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## Acknowledgments

“Consider it pure joy whenever you face trials of many kinds because you know the testing of your faith develops perseverance. Perseverance must finish its work so that you may be mature and complete, not lacking anything” --James 1:2-4

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ABSTRACT

This multiple case study provides a description and explanation of what, why and how instructional strategies have the potential to promote learning-centered synchronous dialogue online, specifically in the synchronous web-based course system (SWBCS), Elluminate Live! This research was guided by the theory of transactional distance, specifically the dialogue component. Qualitative data collection techniques were employed, including, interviews, observations, researcher's reflective journal, surveys and Delphi. Three cases were examined, consisting of the instructor, their students and the synchronous sessions during the course. Data were analyzed iteratively to garner themes. Member checks were conducted to maintain an active corroboration on the interpretation of data between the researcher and those who provided the data.

This study suggests that instructors can promote learning-centered dialogue in the SWBCS by: (a) building social presence, (b) facilitating discussions, (c) providing feedback, (d) assigning group work, (e) respecting diverse talents and perspectives, and (f) emphasizing time on task. The main tools used to implement these strategies in the SWBCS were the duplex audio (VOIP), direct messaging (text chat) and whiteboard.

Unique aspects of promoting dialogue in the SWBCS are that it can allow for: (a) relief of communicative anxiety, (b) convenient, inexpensive invitation of guest speakers, (c) facilitation of multiple threads of discussion and (d) extended opportunities to offer office hours. The main tools used to implement these strategies in the SWBCS were the duplex audio (VOIP), direct messaging (text chat) and whiteboard. Two of the three instructors and a majority of the students whom were interviewed perceived the SWBCS effective for implementing instructional strategies that promote dialogue. Further research may examine a greater variety of content areas, more in depth questions of why particular instructional strategies are implemented using the SWBCS or the relationship between dialogue, structure and learner autonomy in the SWBCS.

## Chapter One

### Introduction

Institutions of higher learning are increasingly becoming the proprietors of on-line education. In 2000–2001, 90% of public 2-year and 89% of public 4-year institutions offered distance education courses, as reported by the National Center of Education Statistics (2003). These data represent significant growth from the 1997-98 report in which 78% for 4-year and 62% for 2-year institutions offered distance education courses. Among all 2- and 4-year institutions in 2000–2001, 19% had degree or certificate programs designed to be completed totally through distance education. 90% of institutions offering distance education courses reported that they offered Internet courses using asynchronous computer-based instruction and of the institutions that offered distance education courses in 2000–2001 or that planned to offer distance education courses in the next 3 years, 88% indicated plans to start using or increase the number of Internet courses using asynchronous computer-based instruction as a primary mode of instructional delivery for distance education courses (National Center for Education Statistics, 2003). As online courses proliferate in universities, it is important for instructors, technologists and designers alike to pay considerable attention to the systematic development processes of these courses in order to facilitate improved quality (Moore & Kearsley, 1996).



### *Background of Transactional Distance*

Interaction is a critical component of education in general. Interacting in the distance education environment is of particular significance due to the lack of nonverbal cues and social presence. The origins of interaction in the educational context derive from Dewey's perspective on learning. Dewey held that learning occurred through the concept of change, development and transformation, i.e. transaction. That is to say, no matter the change (cognitive or behavioral) learning is inherently connected to transaction as a form of change. The foundation of online transaction lies in the interconnectedness of learner, content and computer. Thus comes forth the term, "transactional distance", a function of the variance in dialogue and structure as they relate to each other. Therefore, "distance" in education is not determined by geographical proximity but by the relatedness of dialogue, structure and additionally, learner autonomy, known as the theory of transactional distance (Moore, 1996).

### *Use of the Term Dialogue*

In terms of the theory of transactional distance, the dialogue variable encompasses the term interaction, described above. To be clear, dialogue is the term that refers to the interplay of words, actions and ideas and any other interactions between teacher and learner when one gives instructions and the other responds. Henceforth, the term dialogue will be used as it, (a) includes all types of interactions, (b) is a critical component of transactional distance, the framework for this study and (c) is the primary focus of what, how and why instructional strategies are used to promote it in the synchronous online environment of distance education.

While dialogue may certainly be thought of as a concept that includes not only interactions between teacher and learner but also interactions between learner and learner, the scope of this study prevents a detailed investigation of those interactions between learners. This is not to say those interactions between learners are not important just that their inclusion in this study is limited.

### *Digital Learning Environments*

Some digital learning environments have been criticized for the dominance of presentational content, passively received by students. A practical advantage of the synchronous learning environment is that communication has the potential to be more convenient, frequent, and perhaps most importantly dialogic, in nature, occurring in real time. Students can participate individually or in groups. It is possible that this type of learning environment can challenge students to intensified and higher level learning activities, not only with regard to quantity but also quality. It has the potential to compensate for a structural weakness of traditional distance education caused by the asynchronicity of communication by email.

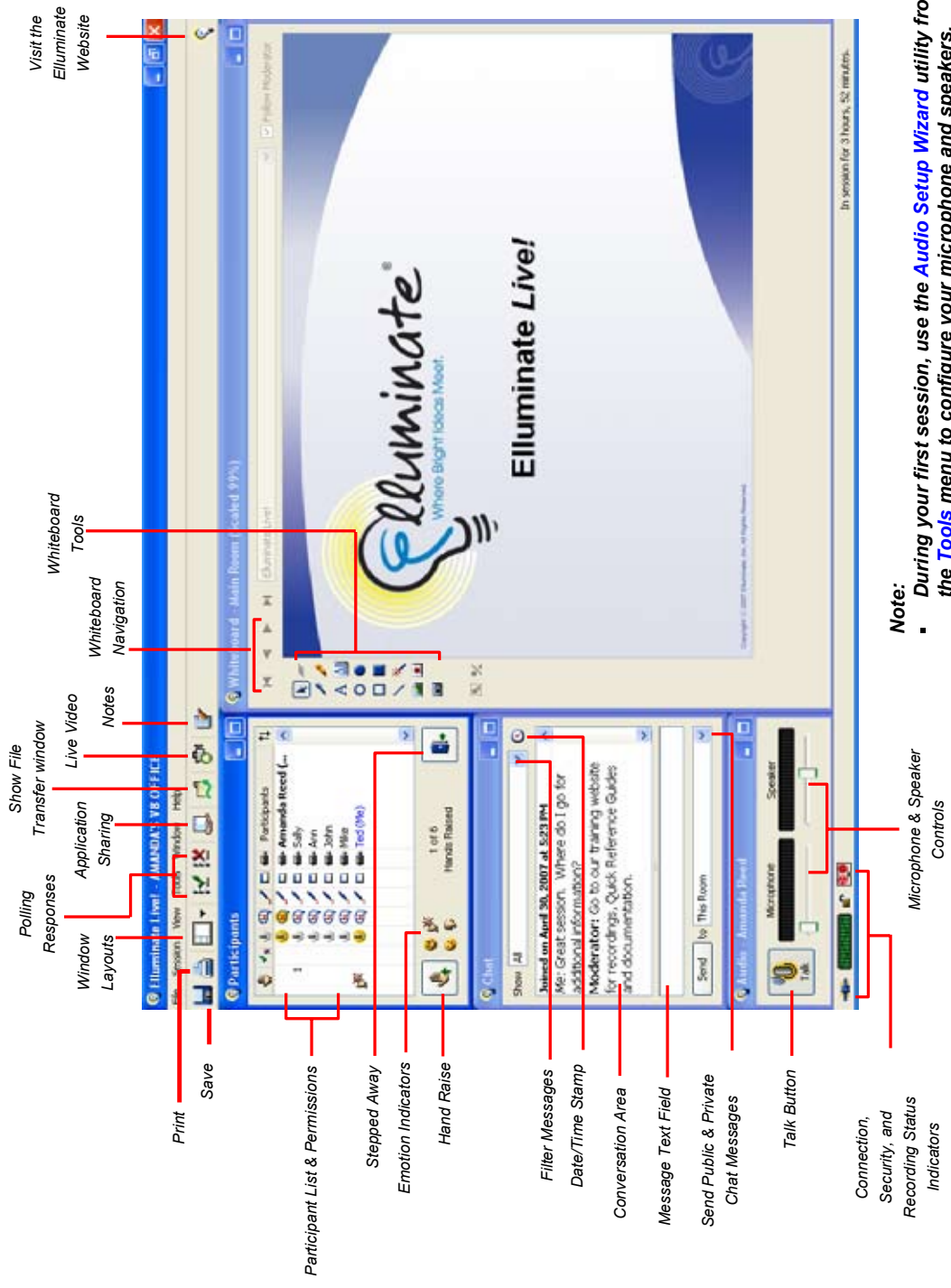
### *Synchronous, Online Learning Environments*

The synchronous online environment is one type of distance education, a virtual classroom comprised of many tools that can be used in real time with as few as two people or as many as can be accommodated depending on the content, connectivity and available bandwidth. Various TCP/IP-based virtual classroom software packages exist, e.g. LearnLinc, HorizonLive, Lotus Learning Space and FirstClass. Features include but are not limited to: two-way audio using voice-over Internet Protocol (VOIP), options for

one-way or two-way video, application sharing, textual chat and break-out rooms and interactive tools, e.g. quizzing, polling and emoticons.

Table 1. Features of a Synchronous Web-Based Course System

Feature	Feature Description
Full-duplex audio	Delivers synchronous voice over the Internet that is accessible at low bandwidths and automatically optimized for use with other classroom elements.
Rich media support	Enables live video via high-resolution web cam, multimedia content, and synchronized web browsing with individual interaction.
Whiteboard	Shareable, interactive include drawing tools and image and PowerPoint import. Copy and paste anything from your desktop onto the whiteboard on the fly. Displayed objects are dynamic, so they can be edited, grouped, layered, or aligned
Recordings	Interactive, indexed enable students who missed a session to attend at their leisure. Playing back recordings is just like being there, with everything in the session recorded and played back as it happened. Indexed recordings allow users to easily search and navigate content.
Application sharing	Allows instructors and students to share applications, entire desktop, or desktop region. Give remote control to students to facilitate hands-on learning.
File transfer	Allows easy sharing of audio, video, and application files with participants, even during recorded sessions
Breakout rooms	Enable students to work in small groups with private audio, whiteboard, quizzing, and application sharing. Instructors can easily move students and content between rooms.
Quiz Manager	Enables instructor to conduct interactive quizzes and surveys, load and store tests, and collect result statistics.
Chat	Offers instant public and private messaging to one, all, or a selected group of participants. Messages can be filtered, time-stamped, and saved to track session communication.
ESP (Elluminate Live! Sensory Perception)	Moderator tools put the instructor in control of both small and large groups with attendee lists, participant sort, permission granting, instant polling, and sequenced hand-raising. Activity and emotion indicators inform instructor of student status.
Accessibility features	Including multiple streams of closed captioning, enlarged video, auditory event notification, short-cut keys, and screen reader access, enable disabled users to more fully participate.
User profiles	Enable attendees to share contact information with others in live and recorded sessions, helping to create a sense of community that facilitates social networking.



- Note:**
- During your first session, use the **Audio Setup Wizard** utility from the **Tools** menu to configure your microphone and speakers.
  - Some features may not be available depending on your version of Elluminate Live! and configuration

Figure 1. Screen capture of the Elluminate Live! synchronous interface

In the synchronous environment, virtual communication can take place in several forms. Computer conferencing and virtual seminars are now entirely possible, instructor or student initiated. Knowledge building communities can be established to promote cooperative learning, peer review and diversity of perspective. These types of dialogue move beyond traditional distance education in that they provide for synchronous communication, alternative assessment and group work. Each of the methods offers an opportunity to, “learn together apart” (Keegan, 1989).

#### *Statement of the Problem*

Even as the synchronous, web-based learning environment becomes more widely used and sophisticated, research in this area lags. Distance educators and their students face many challenges, namely in terms of quality. There is a lack of empirical evidence regarding instructional strategies proven effective in the synchronous distance education environment. Of the research that does exist much of it is anecdotal. In order to ensure that distance education students are given the optimal online environment for learning it is important for researchers to determine what, why and how instructional strategies have the potential to promote learning-centered synchronous dialogue online. “Pedagogical approaches should be revised. There is a need for coherence between virtual learning environments and existing pedagogical methodologies. Juxtaposition of approaches has proved not to be the right solution. A real integration of methodologies, contents and didactical services should occur, so to provide students with a consistent set of curricular opportunities” (Jennings, 2005).

### *Purpose of the Study*

To make sure the purpose of this study is clear; an illustration of transactional distance is given (see Figure 2). As long as there is an instructor, a learner and communication some transactional distance exists. The degree of transactional distance that exists and that necessitates special teacher behaviors depends on dialogue and structure. Consider course “A” in which the instructor dialogues with a learner at least once a day. The instructor has also provided structure in the form of a week by week syllabus, calendar with due dates and specific instructions for each assignment. Now, think about course “B” in which the instructor sends out one weekly email if there are announcements. Students are to read assigned chapters from the book and take the review quizzes at the back. All the quizzes have to be taken some time before the final exam which is scheduled for the last week of classes. In terms of transactional distance, course “A” would have a relatively low level of transactional distance because a greater degree of dialogue and structure are present than in course “B”. The dialogue and structure variables in course “B” are low, creating a higher level of transactional distance. According to the theory of transactional distance, what is important are the strategies that instructors use to engage learners in the process of education no matter the level of transactional distance. Therefore, it is the purpose of this study to examine what, why and how instructional strategies have the potential to promote learning-centered synchronous dialogue online. Transactional distance theory provides the theoretical underpinnings for doing so.

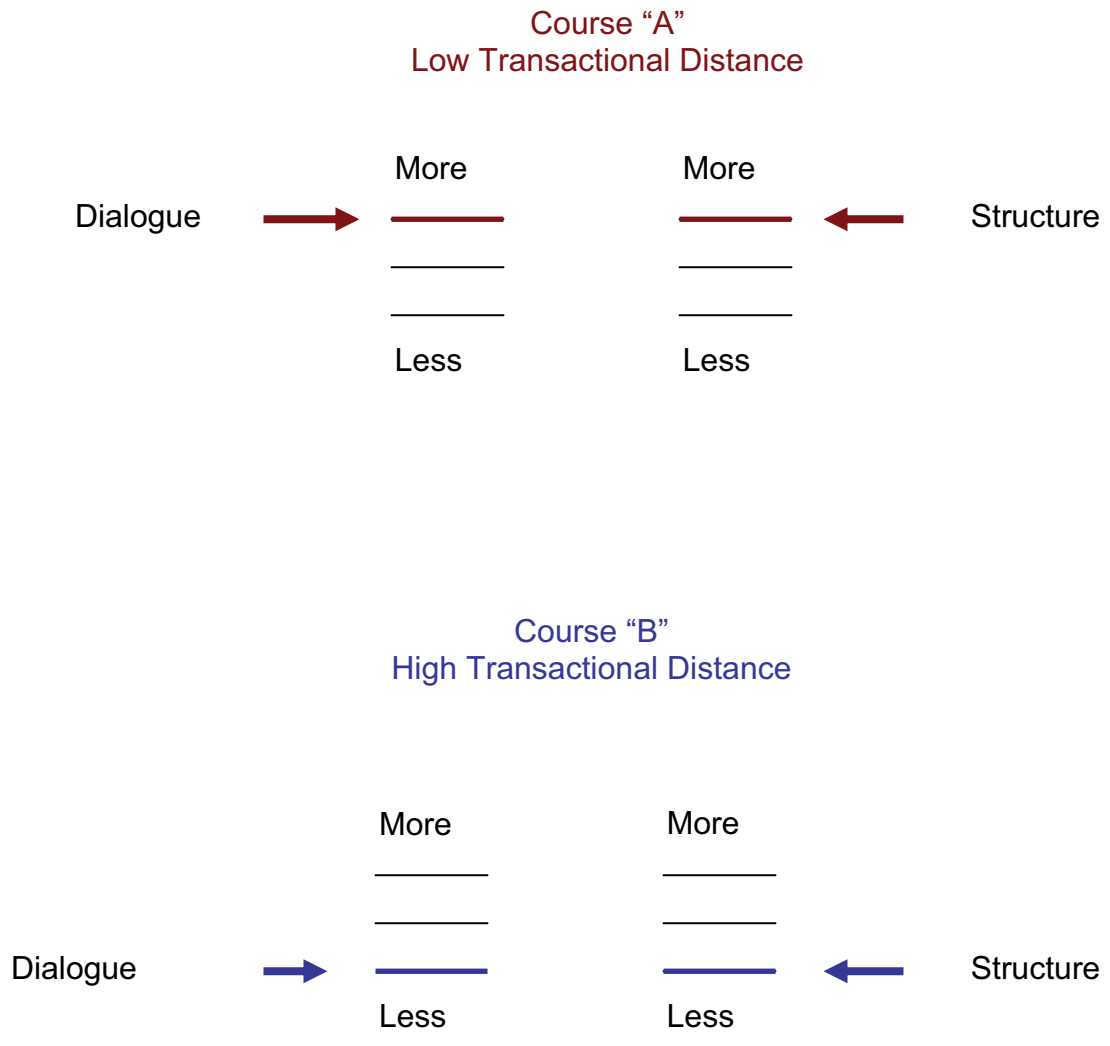


Figure 2. An illustration of transactional distance

### *Research Questions*

1. What instructional strategies have the potential to promote learning-centered synchronous dialogue online?
2. What instructional strategies do instructors *use* to promote learning-centered synchronous dialogue online
3. Why do instructors use these strategies to promote learning-centered synchronous dialogue online ?
4. How do instructors implement these strategies given the tools available in the SWBCS?
5. What is the perceived effectiveness of these strategies?



Table 2. Research questions and methods

Research Question	Applicable Method (in order of potential use)
What instructional strategies have the potential to promote learning-centered synchronous dialogue online?	Literature Review Delphi
What instructional strategies do instructors <i>use</i> to promote learning-centered synchronous dialogue online?	SWBCS observations, Delphi, Instructor Interview/Survey (member checking)
Why do instructors use these strategies to promote learning-centered synchronous dialogue online?	Delphi, Instructor Interview/Survey, (member checking), SWBCS observations
How do instructors implement these strategies given the tools available in the SWBCS?	SWBCS observations, Delphi, Instructor Interview/Survey (member checking)
What is the perceived effectiveness of these strategies?	Instructor Interview/ Survey (member checking) Delphi, Student Pre/ Post Survey, follow-up interview, observations

### *Limitations/Delimitations*

In order to study the nature of what, how and why instructional strategies have the potential to promote learning-centered synchronous dialogue online a case study method is appropriate. Case studies have advantages, providing the method to describe and analyze events in comprehensive terms encompassing all the idiosyncrasies and complexities, frequently as they unfold over time. Selecting cases is a difficult process, but the literature provides guidance in this area (Yin, 1994). The cases that are selected should be easy and willing subjects. A good instrumental case does not have to defend its typicality. However, case studies have limitations, namely, generalizability.

This study is limited by its small, purposeful sample, as it will investigate three real-time virtual classrooms, the instructor, students and documents therein. When undertaking an exploratory case study, Stake (1995) recommends that selection offers the opportunity to maximize what can be learned, knowing that time is limited. Generalization to other populations or content areas is not recommended. However, generalization can be made to theory as pointed out by Yin (1994). Results are strengthened by replication, i.e., pattern-matching, across cases that increases confidence in the robustness of the theory. This study replicates research by Schullo (2005) albeit on a narrower scope, also increasing generalization to theory.

Observing real-time virtual classroom proceedings does not afford the researcher control over actual events. However, internal validity is only relevant in studies that try to establish a causal relationship. It is not relevant in most observational or descriptive stud-

ies, such as this one (Yin, 1994). Should validity be questioned, triangulation (Merriam, 1998), i.e. using many data collection techniques and sources to examine a phenomenon can verify results and allow us to hone in on the reality of the events under consideration (Hoepfl, 1997). Triangulation will be accomplished in this study via several data collection techniques, interviews, observations, surveys and several data sources, instructors, students and experts in the field of distance education.

The courses selected for examination are restricted to a large research university. Generalization of results or use of the instrument in situations divergent from the aforementioned may not be entirely possible but may be the basis of further research. Demographic variables of instructors and learners are not being studied or controlled for in this research.

Moore and Kearsley (1996) state that, “structure and dialogue measure transactional distance”. Although it is the intent of this study to focus on the dialogue component, considering structure in the design process of any distance education course is highly recommended. Case in point, the instructional philosophy underlying the course will have an affect on the structure and dialogue inherent in the course. For instance, if a course is highly structured throughout, with the instructor as facilitator, there may be little need for dialogue, as a learner can most likely construct their own learning from the content and tools provided. However, if a course is loosely structured, dialogue may become a critical component for success in the course as teacher, students and content interact to determine meaning and complete performance objectives.

Another possible limitation to the study involves how the observer might affect the outcome of the dialogue, although other experienced persons in the instructional technology field will be elicited to gauge the reliability of the tool. The researcher recognizes that students may be accessing their courses from various locations. It is hoped that the subjects will be in an optimal environment for accessing and performing coursework but ultimately this variable will not be controlled.

Research on which instructional strategies should be used with different subject areas is limited and the studies that do exist provide no absolute rules. Consider for example, introductory statistics. This course may typically begin with a series of formulae for which sheer lecture, i.e., presentation of information may suffice. Then consider a course on ethics, much of the materials remains unsettled and in need of discussion. Neither the subject area, student learning nor methods used to teach the course are superior in one way or the other; they remain, simply, different. Given the absence of information in this area, this study does not attempt to prove or generalize particular instructional strategies for varying subject areas. However, any such insights will be reported if they emerge.

#### *Acronyms and Definitions*

Asynchronous education. Does not occur in real-time. Instruction/content may be delivered via a learning management system, for example. Content is made available, instructions are given and students generally respond at a later time (Barron, 1999).

Blended learning. The thoughtful integration of classroom face-to-face learning experiences with online learning experiences (Garrison, D. R. & Kanuka, H. 2004).

Dialogue component. A variable of the transactional distance theory that refers to the interplay of words, actions, and ideas and any other interactions between teacher and learner when one gives instruction and the other responds (Moore, 1996).

Distance Education. Planned learning that normally occurs in a different place from teaching, requiring special course design and instruction techniques, communication through various technologies, and special organizational and administrative agreements” (Moore & Kearsley, 2005, 2).

Distance Education Expert. Individuals who have an advanced degree (Ed.S. or Ph.D.) in Education, Instructional Technology or other related field. In addition, the individual must have a minimum of three years of teaching experience in the online environment and conducted greater than six (or two semesters worth) of synchronous sessions. The individual should also be well published in this field.

Learner autonomy. A variable of the transactional distance theory that refers to the characteristic of self-direction (Moore, 1996).

Learning Management System (LMS). An online learning system which allows for the integration of interdependent components of education such as content, records, assessment and discourse (i.e. Blackboard).

Learning-Centered Dialogue (LCD) Online. The interplay of words, actions or ideas that express higher order thinking (Schullo, 2007) in which an instructor initiates and a student responds or vice versa (Moore, 2005).

Social presence. The degree of feeling, perception, and reaction of being connected by CMC to another intellectual entity (Tu & McIsaac. 2002).

Structure component. A variable of the transactional distance theory that refers to how the instructional program is designed (Moore, 1996).

Synchronous learning. Learning that occurs in real time, for example in this study, instructors and students interact in a web-based system that allows them to converse in a live environment.

Synchronous Web Based Course System (SWBCS). A software application that manages real-time interactions between students and instructors in an online environment. Features include textual chat, VOIP, application and virtual tours.

Theory of Transactional Distance. A theory that states distance in education is a pedagogical phenomenon that depends on the relationship between the variables of structure, dialogue and learner autonomy (Moore, 1996).

Transactional Distance. The gap of understanding and communication between the teachers and learners caused by geographic distance that must be bridged through distinctive procedures in instructional design and the facilitation of interaction (Moore & Kearsley, 2005, p. 223).

## *Conclusion*

This chapter has briefly covered relevant aspects of distance education, including the need for interaction. The theory of transactional distance was touched upon to begin the rationale for its use as the theoretical framework in this study. Also mentioned was the synchronous web-based element of distance education.

The next chapter starts off with a theoretical rationale for studying dialogue in the online classroom. Then there is a brief section about how the teacher-centered classroom limits dialogue. The main part of the chapter provides a literature review of research involving instructional strategies that have the potential to promote learning-centered dialogue. First the strategies shown to promote dialogue in the face to face classroom are presented. Then the next portion provides the history and in depth discussion of transactional distance. Finally, the instructional strategies that have the potential to promote learning-centered dialogue in the asynchronous, blended and synchronous online learning environments are offered for review.

## Chapter Two

### Literature Review

The face of education changes rapidly as technology progresses. The constantly changing nature of online education challenges instructors to overcome such obstacles as student feelings of isolation, absence of nonverbal cues and lack of immediacy. Research in online education must keep up with changes in delivery in order to aid instructors. By studying the online education environment and the technologies that facilitate and enhance it, sound pedagogical strategies can begin to be provided for use by educators.

This study focuses on one such educational environment facilitated by a SWBCS to determine what, how and why particular instructional strategies have the potential to promote learning-centered, synchronous dialogue online. This chapter begins with a look at previous educational theory that is relevant to the study at hand. The theoretical framework for this study, transactional distance theory, is woven throughout, first with a look at its origins in terms of transaction itself. The components of the theory of transactional distance are examined: structure, dialogue and learner autonomy, with special attention given to dialogue and where it fits in this model. Then instructional strategies that promote learning-centered dialogue will be examined. Face to face, asynchronous (online), blended and synchronous (online) strategies will be covered.



Table 3. Literature to be reviewed

Topic	Importance to this study	Studies/Theories Reviewed
Instructional strategies that promote learning-centered dialogue in the traditional, face to face classroom	Provides a foundation of existing instructional strategies that have been shown to promote dialogue	Flanders (1970) Chickering & Gamson (1986) Weston & Cranton (1986) Gagne (1985) Roberts & Langer (1991) Hough and Duncan (1984), Anton (1999) Wolcott (1996), Conrad (2002), Sanders (1995) Gorham (1988)
Transaction A history in learning theory Transactional distance	Provide the background framework of this study	Dewey & Bentley (1949/1989) Vygotsky (1978) Moore & Kearsley (1996, 2005)
Instructional strategies that have the potential to promote learning-centered dialogue, asynchronously online	Provides insight into the possible strategies that may emerge in this study	Tu & McIsaac (2002) Gunawardena & Zittle (1996) Lobry de Bruyn Chen, T. (2003)
Instructional strategies that promote learning-centered dialogue, in blended environment online	Provides insight into the possible strategies that may emerge in this study	Bonk & Kim (2006) Kelsey (2000) Hofmann (2006) Hanson & Clem (2006) Wright, Dewstow, Topping & Tappenden (2006)
Instructional strategies that promote learning-centered synchronous dialogue online	Guides the current direction of this research	Knolle (2002) Jennings (2005) Schullo (2005)

### *Theoretical Rationale*

Comparative studies between teaching methods/treatments in the traditional classroom have been conducted for at least a century. Overall, the conclusions tend to reveal “no significant difference” (Weston & Cranton, 1986). Media comparison studies reveal this same, “no significant difference” phenomenon. As a result of distance education research dominated by media comparison studies, genuine distance education research has lagged behind the development of new technologies and their effective use in learning. Despite this previous line of research in distance education and whether or not one agrees that the question of the degree to which technology significantly affects learning is worthwhile, new content delivery modes continue to emerge at an explosive rate. This makes the need for research to catch up with and illuminate praxis all the more important. Researchers would do well to examine how this ever emerging, ever changing world of technology can be used effectively and translate that into the form of instructional strategies for practitioners.

### *Introduction to Face-to-Face Dialogue*

The nature of this inquiry demands a review of the extant literature that addresses the existing practices of dialogue enhancement in a traditional classroom. Instructional strategies used in the traditional classroom to promote, learning-centered dialogue may shed some light on the role of these methods or the need for others in the online, synchronous environment. Before this review begins, a note about classroom dialogue and the role of the instructor in that environment will be discussed to set the stage for the strategies themselves.

### *Teacher-Centered Traditional Classroom's Limit Dialogue*

Teachers in the traditional classroom generally lead and control the flow of dialogue in the classroom, frequently; 'teacher-talk' dominates. In his book, *Analyzing Teaching Behavior* (1970), Flanders discusses results of classroom interaction studies over the previous decade. He notes that, "teachers talk more than all the pupils combined, from kindergarten to graduate school, the major problem appears not to lie in quantity, but in quality" (p.13). Flanders goes on to provide a few more statistics about teacher-talk in classroom interactions. For example, less than 10% of teacher-talk is devoted to consideration of ideas or opinions expressed by pupils. Of all classroom talk, 1-4% of it appears as questions, depending on grade level and subject being taught and only 20% of that original 1-4% are thought-provoking responses, most are clarification, directions or repeat statements. Furthermore, Ellner and Barnes (1983) describe the teacher-learning transactions that were observed using the Flanders Scale in six college classrooms. Less than 4% of the professors' time was devoted to questioning, and even then most of them did not pause long enough for students to reply.

Teacher dominance in the traditional classroom limits dialogue between instructor and student and thus the opportunities to observe instructional strategies that promote learning-centered dialogue. Even in the online classroom this trend exists. Although there are many instructional strategies found in the literature, upon scrutiny, there are not as many that actually promote learning-centered dialogue in the traditional classroom as one might initially think, making the ones that do exist all the more important to mention.

Table 4. Instructional strategies that promote learning-centered dialogue in the traditional, face to face classroom

Instructional strategy	Study
Goal orientation, authority in use, social access; social contacts & range of ideas	Flanders, N. (1970)
Reciprocity, active learning, feedback, time on task, high expectations, respect diverse talents and ways of learning	Chickering & Gamson (1986)
Questioning, discussion, group projects/peer teaching Experiential, e.g. laboratory, role-playing, simulations and games	Weston & Cranton (1986)
Stimulation of recall, providing guidance, eliciting feedback	Gagne (1985)
Agree & challenge, confirm & expand, present & restate solicitation, clarification, corrective feedback, confirmation	Roberts & Langer (1991)
Sociocultural, e.g. discussion of learner preference	Hough and Duncan (1984)
Allocation of turns	Anton (1999)
Rapport-building	Wolcott (1996)
Greetings, sharing autobiographical information	Conrad (2002)
Humor	Sanders (1995)
Instructional immediacy	Gorham, 1988

*Instructional Strategies in the Face-to-Face Classroom*

In addition to characterizing the teacher’s role in classroom interaction, Flanders (1970) also discusses four dimensions for describing classroom interaction. First, the instructor provides goal orientation, setting up the purpose of classroom learning activities,

including input from students and gradually empowering them to make choices about what to do next. Second, the teacher uses his/her authority to maintain credibility and instructional momentum. The third and fourth dimensions are in regard to social access. Social access has two components, social access and range of ideas. Social access means the instructor mediates all communication in the classroom, basically, who can talk to whom. Range of ideas, the second element of social access means what topics or ideas are up for discussion. Flanders provides these four dimensions to frame strategies that promote classroom interaction.

Chickering and Gamson (1986) lay out a compilation of principles for good practice in undergraduate education that in many ways, promote dialogue. First of all, encourage student-instructor contact; for example, make it a point to understand student goals for the course. Another principle is to encourage students to cooperate with each other and learn from each other. Active learning is another guideline, for instance, eliciting student input and tailoring learning activities to their shared interests. Good practice also involves prompt feedback that challenges students to improve. Emphasizing time on task, communicates to the student that their presence and effort in class is purposeful. Communicating high expectations can motivate students to perform at their best, actively participating in their own learning. Finally, good practice respects diverse talents and ways of learning. This might take the form of rephrasing student responses, encouraging the expression of individual ideas or pairing students with different ability levels. Any one of these principles can contribute to promoting dialogue when used intentionally by the instructor.

Weston and Cranton (1986) provide a review article with a comprehensive list of instructional methods along with research-based guidelines for the matching of strategies to instructional setting. Weston and Cranton recognize that research in this area is complex and significant differences among methods are not always shown; however, some general principles can be derived from the results and applied to other classroom situations in higher education. 'Teaching method' is defined as the vehicle or technique for teacher-student communication. Four categories of teaching methods are offered, (a) instructor-centered, (b) interactive, (c) individualized, and (d) experiential.

While Weston and Cranton (1986) discuss many teaching methods, only the methods that have the potential to promote interaction, i.e. elicit a response, are reviewed here. The first method is questioning, typically instructor-centered, where the instructor asks an individual student or the whole class a question and expects a response. Another method, the class discussion, promotes the communication between student-peers and students and instructor. A limitation of this method may be class size, although small groups may be formed in this case, based on student interests or student comfort levels with each other. Group projects or peer-teaching encourages student to interact with each other, with teacher as facilitator and students who have mastered the objective at hand, teaching others who have not yet mastered it. Methods that have the unique characteristic in which students learn in a natural setting are termed experiential. Experiential methods involve the instructor observing and providing corrective feedback. When safety concerns and logistics prevents a real-world learning experience, a laboratory may substitute for

the real setting, especially since the instructor can more closely control outcomes of the learning process. Role-playing is considered both interactive and experiential as students, “act out”, potential situations; using skills they are being taught. Finally, simulations and games represent real situations allowing student participation in the application of principles in a safe and/or practical environment with guidance from an instructor.

Weston and Cranton (1986) qualify these methods by stating that each method is more appropriate than others in some contexts, with different students, in some subject areas and with some type or level of learning. Other confounding variables may arise, such as varying intelligences, prior knowledge or limited resources, even if all the variables mentioned above are known. This makes the point that research on the selection of instructional strategies based only on an objective or course topic is not comprehensive or systemic.

Other researchers have reported instructional strategies that promote learning-centered dialogue in the traditional, face to face classroom. Gagne’s (1985) nine events of instruction provide ample opportunities for dialogue. For example, stimulating recall, providing guidance and eliciting feedback involve interaction between instructor and student. Roberts and Langer (1991) report instructional strategies promoting dialogue as pairs, such as ‘agree or challenge’, ‘confirm and expand’ and ‘present and restate’ when they analyzed classroom discourse among high students in a literature classroom. Hough and Duncan (1984) insist that production of interaction in the classroom is necessarily intentional and persistent on the part of the instructor. Hough and Duncan also describe

several interactive instructional strategies such as solicitation, clarification, corrective feedback and confirmation. For example, in Hough and Duncan's terms, solicitation by the instructor requires an evaluative response from the student(s), beyond yes/no.

Some instructional strategies that promote learning-centered dialogue emerge from what, Anton (1999), terms socio-cultural discourse. The use of socio-cultural strategies in the classroom contributes to the establishment of social-presence an important affective element in terms of making students feel at ease enough to participate. This type of dialogue in the classroom consists of such strategies as discussion of learners' preferences, allocation of turns, rapport-building (Wolcott, 1996), greetings, sharing autobiographical information (Conrad, 2002), and the use of humor (Sanders, 1995). The use of instructional immediacy, i.e. behaviors that enhance closeness and verbal or nonverbal interaction (Gorham, 1988) is also recommended to promote learning-centered dialogue in the traditional classroom.

Webster and Sobieszek (1974) report a few examples of the effects of social presence. As a high-status person in a classroom, the teacher's evaluations can have a strong influence on students' evaluation of themselves. A classroom experiment designed to test the significance of this proposition, found that students who were given positive evaluation from their teachers were more likely to raise their hands to volunteer a response than student who had not receive positive evaluations from the teacher. Cohen and Lotan (1995) substantiated this finding on an individual student level. In their study, the rate of 'teacher talk' - when a teacher provides students with specific, favorable, and public



evaluation so that high-status students hear and accept the teacher's evaluation, had a statistically significant positive effect on the participation of low-status students. Although it has also been found that interactions are influenced by the affective relationships teachers have with students, rarely are the teacher-student interactions consistent from student to student or even from one observation of the classroom to another (Brophy & Good, 1984). This is an overview of the instructional strategies found to promote learning-centered dialogue in the traditional classroom.

### *Transaction – A History in Learning Theory*

Now we move on to where these instructional strategies came from and where they are going. As mentioned in the introduction, the original concept of transaction was derived from Dewey's perspective on learning in which learning occurred through change or transaction. Most contemporary learning theory agrees with the general notion that learning stipulates a change in the human participant. Boyd and Apps (1980) developed Dewey's concept of transaction by explaining that it, "...connotes the interplay among the environment, the individuals, and the patterns of behaviors in a situation".

Lev Vygotsky (1978) initiated a theoretical principle that revolves around the triadic relationship between the object of cognition (content), the active subject, and the tool or instrument that mediated the interaction (in this case, the computer). Vygotsky maintained that all activity is mediated by the third element. Vygotsky's model of mediated activity, comprised of the subject, object, and mediating tool, can be visualized as a triangular relationship among the three. The subject refers to the learners. The object

refers to the learning goals to which the activity is directed. Vygotsky emphasized the inseparability of the elements of mediated activity, individuals engaging in activities with instruments and others in the environment. He recognized the mutualistic relationship between learners and tools and their reciprocal developmental influences on one another. Tools and the knowledge relevant to their use are passed from one generation to the next. Due to this caveat of mediated activity, learning is not solely an individual activity but a collectively shared process with significant cultural and historical implications (Dewey & Bentley, 1949/1989). Transformation occurs as the learners, instruments, objects and the context in which they function are all changed. Thus, designers must realize that instructional systems are dynamic. “Designs must be understood *in situ*, as part of a larger activity system” (Barab, Evans & Baek, 2003, p.200).

#### *Transactional Distance – A Theory*

How does learning occur in distance education? The study of this question necessitates a theoretical framework. Paradigms previously used to examine and evaluate regular classroom teaching may not be applicable to the analysis of distance learning instruction. Of interest to the study of instructional strategies that promote learning-centered synchronous dialogue online is the theory of transactional distance and its constructs: (a) structure, (b) dialogue, and (c) learner autonomy.

As online courses proliferate in universities, it is important for instructors, technologists and designers alike to pay considerable attention to the systematic development processes of these courses. Systematic design provides improved quality (Moore &

Kearsley, 1996). Moore and Kearsley describe a systematic design approach to distance education development based on the theory of transactional distance (1996). Transaction as defined by Moore and Kearsley (1996), is the interaction between learners and teachers in the particular situation of being separate from one another and the consequent teaching and learning behaviors that result from this separation. Although it is physical distance that increases the potential to cause gaps in communication and potential for misunderstandings, transactional distance actually results from a pedagogical phenomenon rather than physical.

Transactional distance as a pedagogical phenomenon depends on the relationship between the variables of structure, dialogue and learner autonomy (Moore, 1996). According to transactional distance theory, dialogue is the variable that refers to, "...the interplay of words, actions, and ideas and any other interactions between teacher and learner when one gives instruction and the other responds" (Moore & Kearsley, 1996). Structure is the variable of transactional distance theory that refers to how the instructional program is designed (Moore, 1996). And learner autonomy is the variable of transactional distance theory that refers to the characteristic of self-direction (Moore, 1996).

The theory of transactional distance is illustrated in Figure 2. The constructs, structure and dialogue between the instructor and student in the distance classroom are displayed. The degree of transactional distance determines the need for special teacher behaviors. As an illustration, consider asynchronous educational processes taking place via a learning management system. Although very little dialogue may occur, the instruc-

tor may have taken great care in organizing the course (adding structure) in order to clearly guide students thus mediating the affects of transactional distance. Now consider the synchronous web-based course system. There may be a relatively high degree of dialogue between instructor and learner and relatively less structure as the teacher is there in an immediate sense to guide learning. In an entirely different way, the affects of transactional distance in this synchronous environment may be mediated because the learner has access to the instructor right then and there for feedback, clarification and/or reinforcement (whether instructional or social). Neither situation is inherently superior it is just that, according to the theory of transactional distance, each situation has a different level of transactional distance and thus should be addressed by the instructor with instructional strategies that provide the optimal learning environment.

Of significance, according to the theory of transactional distance, are the strategies that instructors use to engage learners in the process of education no matter the physical distance between them. Moore and Kearsley stipulate that the high level of transactional distance that typifies distance education initiatives so significantly affects learning behaviors that it, "...actually dictates that teachers plan, present content, interact and perform the other processes of teaching in significantly different ways from face to face environments" (2005, 224). In summary, when the transactional distance is such that special structural and teaching behaviors are necessitated (as opposed to using traditional face-to-face strategies) particular design considerations must be employed.

There are several factors that determine the extent and nature of dialogue. These include educational philosophy, subject matter and environment. The existence and size of the learning group also has an affect on the dialogue that occurs. In addition, the medium through which dialogue takes place has a considerable affect on the type, volume and style of the dialogue interaction (Moore & Kearsley, 1996). The fact that so many factors do influence instructional dialogue provides all the more reason to determine what about pedagogy can change or be brought to the fore to promote learning-centered dialogue online.

*Instructional Strategies Having the Potential to Promote Learning-Centered Dialogue Online*

“We can describe transactional distance by looking at teaching behaviors that are executed apart from the learning behaviors” (Moore, 2005). What is known (so far) about effective online instructional strategies? Which ones promote dialogue? The discussion of instructional strategies having the potential to promote learning-centered dialogue online begins with strategies in the asynchronous environment.

*Asynchronous.* Table 5 summarizes the current literature encompassing instructional strategies having the potential to promote learning-centered dialogue in the asynchronous environment online.

Table 5. Instructional strategies having the potential to promote learning-centered asynchronous dialogue online

Instructional Strategy	Study
Social presence, greetings, feedback, casual communication styles, caring demeanor, encourage use of emoticons and paralanguage, discussions, group work, turn-taking	Tu & McIsaac (2002)
Discussions, instructor immediacy, i.e. humor, feedback Social presence	Lobry de Bruyn (2004) Gunawardena & Zittle (1996)
Use of communication norms, group identity, careful selection of interactive activities, adapting content to learners	Chen (2003)

Tu and McIsaac (2002), studied the relationship of social presence and interaction in the online environment. They hypothesized that using strategies to improve the dimensions of social presence: (a) social context, (b) interactivity and (c) online communication would increase interaction of online students and instructors in online classes.

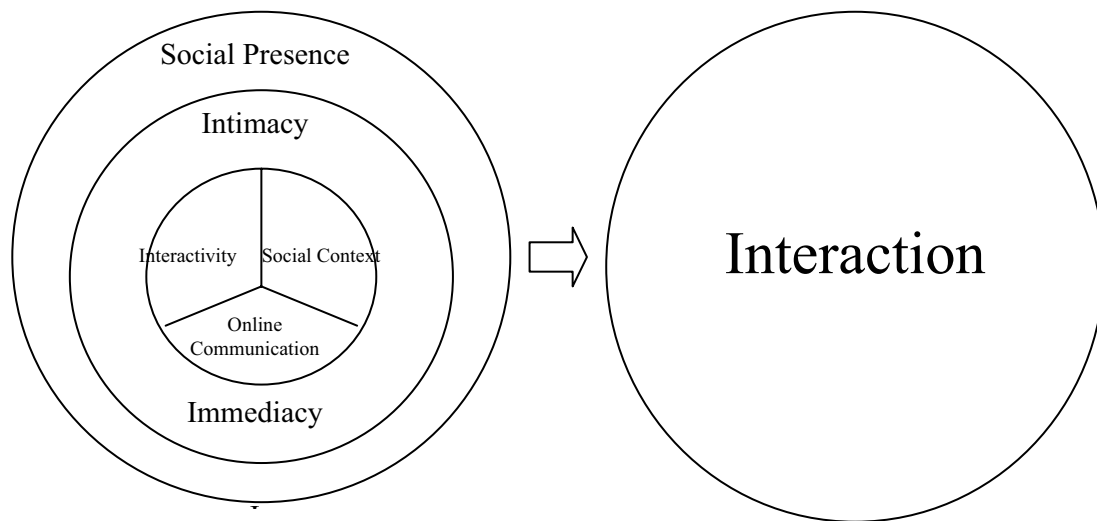


Figure 3. Social presence and interaction (Tu & McIsaac, 2002, p.132)

Both quantitative and qualitative methods were used to understand students' perception of social presence. Dimensions of online social presence and privacy were examined using the CMC questionnaire, validated in a previous study (Tu, 2002). The questionnaire evaluates e-mail, bulletin board and real-time chat. The questionnaire contains, seventeen social-presence items and thirteen privacy items, each with a five-point Likert scale and twelve demographic identities. An exploratory factor analysis was performed on the questionnaire items. Five factors (social context, online communication, interactivity, system privacy, and feeling of privacy) were retained. These five factors accounted for 76.74% of the variance. Cronbach's alpha for these five factors ranged from .82 to .71. The factor analysis was conducted for each of the three CMC systems, email, bulletin board, and real-time discussion. The coefficients and factor structures were similar in all three CMC systems.

The qualitative data analysis began with the three dimensions (social context, online communication, interactivity) and a privacy factor as derived from the quantitative results and previous literature review. Participant observation, casual conversation, an in-depth interview, direct observation and document analysis were used to understand social presence in computer mediated communication (CMC). FirstClass, a computer conferencing system equipped with e-mail, bulletin board and real-time chat functions was used for class communication. Observations were conducted in various settings, the classroom, the computer lab, and through online asynchronous and synchronous class discussions. Social context, online communication, interactivity and the privacy factor re-

mained. In addition, the qualitative data analysis indicated that there were more variables that contribute to social presence. For instance, the degree of familiarity with participants appears to be critical in the qualitative data although that did not load on social context in the quantitative data analysis.

Indeed, Tu and McIsaac found that social presence positively influences online interaction although a higher frequency of participation does not necessarily equate to higher levels of perceived social presence. Tu and McIsaac made a series of instructional recommendations based on increasing the various components of social presence and thus interaction, as follows: (a) dedicate time for introductions to be integrated into course design at the beginning of the semester to allow participants to become familiar and socialize with one another, (b) use casual communication styles, e.g. initiate conversations with greetings, positive feedback (praise), and invitational tones to encourage participants that feel overshadowed by more assertive counterparts, (c) model a caring demeanor, (d) implement formative assessment of keyboarding skills and recommend communication modes accordingly, e.g. those participants with better keyboarding skills may function better in a real-time textual chat environment than those whose keyboarding skills are minimal, (e) encourage use of emoticons and paralanguage for self-expression, (f) allow students to have input into discussion topics, (g) keep real-time work groups to 2-3 to maximize interactions, if a larger group is necessary, a turn-taking system should be implemented. Clearly, social presence is a vital element influencing online interaction. The instructional recommendations by Tu and McIsaac (2002), serve to guide distance educators in technology selection that optimizes learner interaction.



Lobry de Bruyn (2004) assessed the level of social presence as an indicator of developing a highly interactive, asynchronous computer-mediated-communication (CMC) learning environment. The goal of the study was to maximize the capacity of asynchronous CMC by building peer-to-peer discussion opportunities in the context of interactive, inquiry-based activities. The learning management system, WebCT was used to deliver online learning units and served as the discussion platform. Preview notes and a structured learning guide were also provided as resources to the students in the course.

The data were electronically gathered from two groups of student online discussion postings. One group of postings was from 25 students, gathered in 2001 and the other a group of 30 students in 2002. Each group of postings was archived over a 2-week period. Content analysis, with the unit of analysis being an individual student posting, was used to analyze each set of discussion postings. Postings were coded by categories. One of the categories was termed, “interactive” and was defined as, complimenting, expressing appreciation or agreement, asking unsolicited questions, referring to others’ messages, quoting from others’ messages and continuing a thread. Sixty-two percent of the postings in 2001 were considered interactive (n=37) and fifty-eight percent of the postings in 2002 were considered interactive (n=48).

Lobry de Bruyn recommends greater instructor immediacy to improve the quality and quantity of student participation in online discussions. She also recommended that participation could have been enhanced had the online discussions been instructor moderated and/or compulsory. Finally, the interactive component of the online discussions may

also have been improved had the online discussions been explicitly linked to student outcomes or learning objectives.

Gunawardena and Zittle (1996) studied the effectiveness of social presence as an indicator of learner satisfaction (the dependent variable) in CMC. Fifty students completed the 61-item, GlobalEd questionnaire, assessing participants' responses to CMC. Of the 61-item questionnaire, fifty-two five-point Likert scale items were used, that measure variables in the following areas: (a) social presence, (b) active participation, (c) attitude toward CMC, (d) barriers to participation, (e) confidence in mastering CMC, (f) perception of having equal opportunity to participate, (g) adequate training in CMC at participants site, (h) technical skills and experience using CMC (i) and overall satisfaction. A step-wise regression was performed with these eight factors.

The first model developed was a four factor model, accounting for 75% of the variance. Social presence contributed to 58% of the variance, equal opportunity to participate contributed 6%, both experience using CMC and attitude toward CMC accounted for 5%, each. Considering the response dropout rate, an additional step-wise regression was computed, producing a three factor model, accounting for 70% of the variance. This time, attitude toward CMC did not make a significant contribution to the model. In any case, these results suggest that indeed, social presence can be a predictor of satisfaction in CMC, having a strong positive effect despite the overt lack of social cues. An implication of this finding that was further examination showed that when perceived social presence was low, the use of emoticons had no effect on satisfaction, however when perceived so-

cial presence was high satisfaction improved as the use of emoticons increased. Based on these findings Gunawardena and Zittle (1996) recommend that instructors who typically rely on nonverbal cues to gauge their instructional presentation consider developing skills that create social presence in the CMC environment.

Chen (2003) presents a review of current research on networked learning communities with the intent of providing recommendations to practitioners who will engage in designing and developing effective networked learning communities (NLCs), Chen (2003), identified four factors influencing learning in communities: (a) interactivity, (b) opportunities for collaboration, (c) meaningful and motivating context, and (d) continuously available learning environments. After identifying these four factors, Chen provides several recommendations for constructing effective networked learning communities. The framework for these recommendations represents three major aspects of networked learning communities: (a) technological, (b) sociological and, (c) pedagogical. These recommendations are presented with the idea that using them will increase student participation and add to the effectiveness of the learning community.

In the technological category, students who have convenient access to the technology tend to participate more therefore it is recommended that easy access be a provision of building successful NLCs. Chen recommends making informed choices about which media will facilitate collaboration best. In addition, technical training, early on in the construction of the NLC, will help students master technical skills necessary to participate in the NLCs. To create a sense of sociological belonging, Chen recommends establishing

and insisting on the use of communication norms. Also, when groups are established it is important to allow groups to establish an identity in and of themselves while still allowing students to express their individuality. Finally it is necessary to coordinate interactivity events, carefully selecting those that are appropriate for specified learning outcomes. Pedagogically speaking, it is critical to obtain an understanding of the type of learners one is interacting with. And then be willing to adapt learning content and objectives to this unique population.

Lobry de Bruyn brings up instructor immediacy to increase student participation. Verbal immediacy includes: humor, frequent use of student name, encouragement of discussion, feedback to student initiated comments, encouraging continued contact among students, sharing of personal examples, smiling, eye contact, vocal expressiveness and gestures. Gunawardena and Zittle (1996) credit Hackman and Walker (1990) with recognizing teacher immediacy behaviors. Such behaviors include gesture, smile, humor, varying voice tone, personal examples, addressing students by name, praise, initiating discussion, encouraging feedback, and avoiding tense body posture. Immediacy contributes to student satisfaction with learning.

A review of the literature relating to pedagogy that promotes learning-centered dialogue, asynchronously online reveals the following themes: (a) researchers have hypothesized that increasing the opportunities for interaction in distance education will lead to an increase in actual online interaction. Online communities offer the promise of increased student interactivity (Lobry de Bruyn, 2004; Kelsey, 2000) as well. The lack of

visual/social cues in distance education environments is a challenge to promoting interaction (Lobry de Bruyn, 2004; Tu & McIsaac, 2003). Gunawardena & Zittle (1996), discovered that students make up for an absence of visual/social cues if they perceive social presence to be high in the first place by using emoticons. Another challenge to interaction is that students are afraid their contribution is repetitive or will not be respected (Lobry de Bruyn, 2004). To increase student participation instructor immediacy is needed (Lobry de Bruyn, 2004; Tu & McIsaac, 2003). In addition, opportunities to include social communication venues in distance learning environments is necessary to let students develop personal relationships eventually increasing interaction (Gunawardena & Zittle, 1996; Tu & McIsaac, 2003).

*Blended.* While blended learning has existed for decades, it has only been formalized as a distinct type in the last few years (Bonk & Graham, 2006). Therefore, rigorous research in this area has only just begun, especially in terms of effective pedagogy. A review of the literature in this area reveals blended learning strategies that appear to be effective in promoting dialogue thus far.

Before a discussion of specific instructional strategies that promote dialogue in the blended learning environment, a brief overview of blended learning is presented here, given that the concept itself is so new. Blended learning combines face-to-face instruction with computer-mediated instruction (Bonk, C. & Graham, C. 2006, Garrison, R. & Kanuka, H. 2004). Blended learning has resulted from the convergence of two distinct types of learning, face-to-face, traditional classroom instruction with distance learning,

which has grown with the use of online, computer-mediated instruction. For decades, classroom and distant learning environments remained separated. As mentioned previously, teachers tend to dominate in the traditional classroom. As recently as 2001, 83% of traditional classroom instructors in higher education reported using the lecture method as their predominant teaching strategy (U.S. Department of Education). At the other end of the spectrum while the distance learning environment tends to be more learner-centered, a concern is that it often transmits large amounts of information for students to absorb independently. Previously, the environment in which learning took place has limited instructional methods. For example, a face-to-face classroom is ideal for discussion, but in a correspondence course, a discussion is nearly impossible. This is not the case anymore. Distance learning has been revolutionized by technological innovations. As digital learning technologies have been introduced into the traditional classroom, the two types of learning that used to be largely separate are now integrated. This progressive convergence of traditional face-to-face and distance learning environments has led to blended learning (Bonk & Graham, 2006). Figure 4 illustrates this convergence.

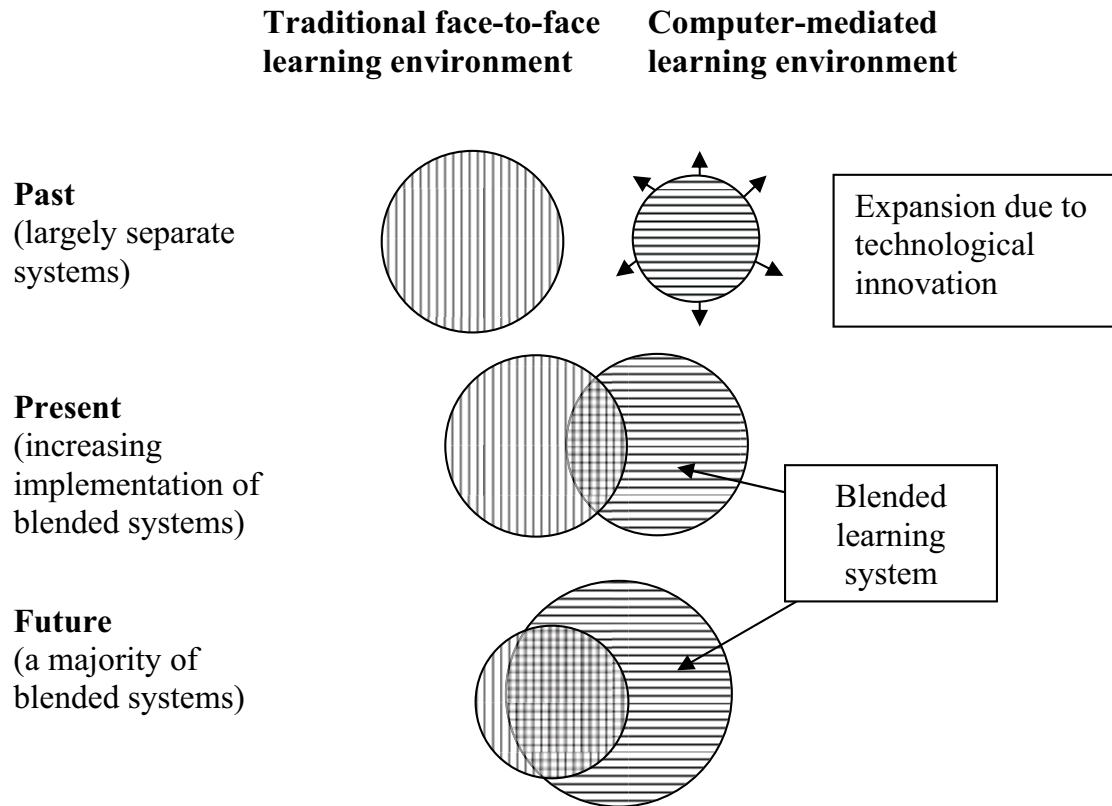


Figure 4. Progressive Convergence of traditional face-to-face and distributed environments allowing development of blended learning systems (Curtis & Bonk, 2006, p.6).

“One of the most commonly cited reasons for blending is more effective pedagogical practices” (Bonk & Graham, 2006, p.8). Blended learning approaches have been shown to increase interaction between student and instructor (Dziuban, C., Hartman, J. & Moskal, P., 2004). Course level blending is one of the most common types of blended learning. Course level blending combines distinct face-to-face and computer mediated sessions as part of a course. Blended learning within a course may occur in more than

one way. Some of the face-to-face and computer mediated activities overlap in time while others are sequenced chronologically but not overlapping. Enormous emphasis has been placed on enhancing blended learning in university settings, in large part, due to the widespread adoption of learning management systems. It is now commonplace for most instructors to use some form of technology (Bonk, C. & Graham, C. 2006). In the near future, learning systems will not longer be differentiated on the basis of whether they blend or not but rather by how they blend (Ross and Gage, 2006).

Now that a general discussion of blended learning has been presented, specific instructional strategies found to promote dialogue in this environment will follow. Table 6 provides an overview of these strategies.

Table 6. Instructional strategies having the potential to promote learning-centered dialogue in the blended learning environment

Instructional Strategy	Study
Group problem solving, collaborative tasks, problem-based learning & discussions	Bonk & Kim (2006)
Video broadcast followed by Q & A sessions, f2f orientation, guest speakers, email & discussions	Kelsey (2000)
Expert demonstration, real-time practice	Hofmann (2006)
Reflection	Hanson & Clem (2006)
Chat rooms, synchronous online office hours, f2f orientation, rapport building, individual feedback, community learning	Wright, Dewstow, Topping & Tappenden (2006)



Bonk & Kim (2006) conducted a survey targeting college instructors via MERLOT, a higher education association of more than 14,000 college professors, instructional designers, and administrators. Out of 12,000 survey requests, there were 562 respondents, 65% of whom were college professors or lecturers in higher education, 28% were administrators or technical support personnel and the rest were in educational consulting. Ninety-three percent of these respondents indicated that they were currently using some type of blended learning. When asked to select four pedagogical techniques that would be used most widely in this environment, over 65% selected group problem solving and collaborative tasks, while 58% choose problem-based learning, and 43.6% selected discussion.

Kelsey's study represents a blended learning approach, involving dialogue that is face to face, asynchronous and synchronous. Kelsey (2000), set out to determine the extent to which participants would take advantage of interactive opportunities offered in a computer-mediated course. In addition, perceived barriers were documented. Four courses were offered via 2-way interactive compressed video (1 originating site, 3 satellite site, synchronous) and one was offered via pre-recorded videotape (asynchronous) on a weekly basis for one semester. Several opportunities for interaction were included in the course format as follows: (a) email, (b) face-to-face interaction between students and site facilitators, (c) 10 minute question and answer sessions following guest speakers, of which there were eleven, (d) brown-bag luncheons with guest speakers following class sessions, and (e) discussion board. A comprehensive course website with a student photo gallery, course outline, course rules and relevant journal articles was also available.

The researcher used a qualitative, case study approach, collecting data via email, interview and observation. Although there were five varying modes of interaction available to students, overall participation was minimal. The face-to-face interaction between students and site facilitators was the most frequent and rated the most enjoyable by the students. However, the most important educational interaction reported by the students was the live video broadcast with question and answer sessions, the weekly synchronous sessions. The students experiencing the course in the synchronous format reported higher satisfaction with learning than those students in the asynchronous section. Although the course was offered in a, “fully interactive” format, technology-wise, participants did not use it as such. Kelsey concluded that, “Distance educators can improve interactions by focusing on pedagogical improvement...” (p. 70).

Hofmann (2006) recommends blended learning when, “Maybe you need an expert available in a live format but don’t need true face-to-face interaction. For instance, if there is a need for application demonstrations and instructions, a live, online classroom (synchronous) would work well for demonstration. In addition, participants might be able to toggle to their desktops to practice the techniques. With such an approach, immediate access to experts is still available, and participants leave this component of the curriculum having already applied their knowledge” (p. 33). Hanson & Clem (2006) recommend the use of reflection in the blended learning environment. Blended learning offers a continuum of reflective opportunities and learning experiences, in line with Dewey’s (1938) conception of learning as a process.

Wright, Dewstow, Topping & Tappenden (2006) conducted a study on all the blended courses at the University of Waikato, New Zealand. They provide several examples of “success stories” from their study which include pedagogy they recommend for use within the blended learning environment. A majority of discussions occur asynchronously in blended courses at the University of Waikato. However, instructors use synchronous chat rooms for office hours and are encouraged to begin forming collegial relationships with students at face-to-face orientation meetings and continuing building those relationships throughout the course and educational program. Instructors support learners by providing individual feedback on their written work. Community learning, cooperation and support among students are considered pedagogical tools, in fact, instructors take care not to interfere with peer-peer learning.

*Synchronous.* There are a variety of synchronous web-based course systems; Chapter 1 provided a description of the typical features. Although there are several synchronous tools that can be used in distance education such as (a) 2-way interactive satellite broadcasts, (b) textual chat, (c) telephone conferencing to name a few, a SWBCS is the only one that provides a single interface that contains a variety of technological tools to be used in real-time. Whole classes, small groups or pairs can interact via such a system. This next section will examine the research conducted in the area of synchronous web-based educational environments. There are only a few research studies that focus on effective use of instructional strategies in synchronous web-based learning technologies. Those studies will be synthesized here. Table 7 provides an overview of these studies.

Table 7. Summary of research on synchronous web-based course systems

Author/ Date	Purpose of Study	Method	Delivery Mode	Statistics	Importance to this study
Knolle, J. (2002)	Addressed the use of successful face to face strategies applied online	Delphi Technique. Consensus was built via three rounds of successive questionnaires.	Horizonlive	N=56 instructors Average rating on 68 strategies are provided	The strategies reported here inform the expansion of Chickering and Gamson's (1987) seven principles of undergraduate teaching to implementation in the SWBCS
Jennings, A. (2004)	Examine the impact of an online synchronous learning environment using a web-based collaborative platform	Project Evaluation. Questionnaires/ Surveys, observation, document analysis, and member checking	LearnLinc	N=49 students, lecturer	Recommendations for implementing instruction using SWBCS are made
Schullo, S. (2005)	To observe how SWBCS can enhance a distance education environment	Case Study. observation, interview, survey, journal	Elluminate Live!	N=6 instructors	Current research will follow-up on the authors recommendations for future research: Synchronous strategies, observed and self-report, quality and quantity of the strategies, focus on interactions between instructor and students

Integrated synchronous web-based instruction in distance education environments, beyond teleconferencing and textual chat is relatively new and therefore the research in this area minimal. A review of the literature revealed three studies that report specifically on pedagogy and SWBCS in the higher education, distance education setting (Knolle, 2002; Jennings, 2004 and Schullo, 2005). These three studies will be discussed here. Note that each of these studies took place in a blended learning environment

Using the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987) as a theoretical framework, Knolle (2002) conducted a Delphi study investigating best practices for using HorizonLive, a SWBCS, to teach in the online environment. Prior to Knolle's study, instructors used satellite transmission to conduct courses. Knolle's study focused on the conversion from satellite delivery to that of a blended model including HorizonLive and an asynchronous learning management system. Data was collected from 56 instructors in the form of three self-report, web-based questionnaires. The data was reduced to 68 strategies for use in the HorizonLive environment. Eight strategies received a score of at least 6 out of 7 as reported by instructors, those strategies and the Principle for Good Practice in Undergraduate Education it relates to are displayed in Table 8.

Table 8. Pedagogical Strategies Identified by Instructors Using SWBCS-HorizonLive That Support Chickering and Gamson's Seven Principles For Good Practice in Undergraduate Education (Knolle, 2002)

Chickering and Gamson's Seven Principles Average For Good Practice in Undergraduate Education	Strategy	Rating
Communicates high expectations	Model high expectations when teaching in the online environment through quality lecture material and feedback to students	6.54
Communicates high expectations	Refer to the course syllabus, grading scale, and requirements during the online class session to clarify expectations for projects, assignment, etc.	6.50
Emphasizes time on task	Focus the discussion and lecture in class by displaying slides showing the current course topic or discussion item	6.40
Emphasizes time on task	Have materials, web sites, and information organized and ready to use prior to the class session	6.39
Respects diverse talents and ways of learning	Reframe students' comments when necessary to facilitate others' understanding of the issues	6.25
Encourages contact between students and faculty	Acknowledge students comments throughout the class session	6.11
Communicates high expectations	Show detailed descriptions of assignments and rubrics for grading when introducing assignments or projects to students	6.04
Respects diverse talents and ways of learning	Vary activities, lectures, question and answer, discussion and guest speakers during the class session	6.04

A Master's thesis by Jennings (2004) studied the pilot implementation of a SWBCS e-learning collaboration platform, LearnLinc ([www.ilinc.com](http://www.ilinc.com)) the first TCP/IP based virtual classroom software and is credited with launching the industry in 1994. There were 49 part-time, evening students and one lecturer that participated in the project. Data was collected from a variety of methods. Students were given three separate questionnaires dealing with computer availability, pre-attitudinal and post attitudinal. Several observations were made of recordings from the LearnLinc environment, live lectures, informal discussions, and listserv content. Document analysis of student assignments that captured their comments following synchronous sessions occurred. Pertinent pedagogical findings are discussed here.

Jennings found that employing guest lecturers and having some face-to-face sessions prior to the synchronous session encouraged interaction later on. Face-to-face sessions also aided in opening up dialogue in the online mode. Interaction was stimulated by use of a variety of the tools available in the synchronous environment, e.g. text chat, whiteboard, and virtual web tours. Making recordings available to students quickly after the event proved useful. It was found helpful to encourage instructors to get used to the absence of eye contact and body language before the synchronous sessions were introduced. The use of discussion questions was effective for generating dialogue as well as having an assistant who participates occasionally in the discussion. Of final importance was that the instructor implements the SWBCS in a gradual fashion, reflecting and improving on previous sessions, using comments from students.

Schullo (2005) examined six courses in the higher education system using case study methodology for the purpose of determining how SWBCS could be used to enhance distance learning courses. Interviews, surveys, observation of virtual classroom recordings and focus groups were used to gather data.

In terms of pedagogy, the most successful strategies were: (1) mini lectures with interactive exercises, (2) structured group work and collaborative exercises, and (3) case study discussions, (4) use of polling, quizzing and student interactions, (5) dissemination of electronic content for immediate discussion, feedback or problem solving, (6) reinforcement of ideas, concepts and knowledge, and (7) question and answer sessions. In addition to pedagogy, Schullo's study focused on development of social presence as a particularly important aspect of building a successful online synchronous learning environment.

Another issue of interest from Schullo's study is the observation instrument. Although structure was not the focus of Schullo's or this research study, the structure component of transactional distance cannot be ignored due to its relationship to dialogue. Schullo addressed the structure issue by documenting some of the elements that provide structure as recommended by Moore and Kearsley (1996). Some examples of structure include, preparing and distributing instructional materials before class begins and providing an agenda for class sessions. Other structure elements that the researcher will be looking for when observing the synchronous classroom recordings are: (a) prompt start time, (b) stated objectives , (c) clear directions and (d) preview of content.



Based on the research in the literature review, the instructional strategies that have the potential to promote, learning-centered dialogue across delivery modes, face to face, asynchronous online, blended and synchronous online were synthesized. This synthesis guided this inquiry and aided in developing appropriate methods and instruments. The strategies that overlap among the these delivery modes are displayed in Table 9.

Table 9. Synthesis of instructional strategies having the potential to promote learning-centered dialogue

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Instructional Strategy
Provision of opportunities for discussion
Provision of feedback
Development of social presence/instructional immediacy/rapport building
Assignment of group work/collaboration
Respect of diverse talents & perspectives/learner preferences

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It is not too surprising that instructional strategies overlap from one delivery mode to the other. Despite the need for change in teaching methods, relatively little movement in terms of instructional strategies has occurred despite a century of teaching and research in the educational field.

This chapter covered the theoretical rationale for studying dialogue in the synchronous online classroom. A section about how the teacher-centered classroom limits dialogue followed this rationale. The main part of the chapter provided a literature review

of research involving instructional strategies that have the potential to promote learning-centered dialogue. The strategies shown to promote dialogue in the face to face classroom were presented. The next portion provided a discussion of transactional distance. Then instructional strategies that have the potential to promote learning-centered dialogue in the asynchronous online and blended learning environments were presented. Finally, the results of studies that currently exist on instructional strategies in the synchronous online learning environment were offered for review.

The next chapter covers the research methods and instruments that were used to collect data. There is a description of the method and instruments as well as ideas about why these particular methods and instruments were implemented to examine instructional strategies that promote learning-centered dialogue in the synchronous web-based classroom.

## Chapter Three

### Methods

The relevant literature and theoretical framework were discussed in the previous chapter. This chapter covers the research method and instruments that were used to collect data. A description of the method and instruments as well as why these particular methods and instruments were implemented to examine instructional strategies that promote learning-centered dialogue in the synchronous web-based classroom are provided. The literature review, theoretical framework and pilot study served to guide the selection and refinement of appropriate methods and instruments. The relationships between the existing research, the theoretical framework and the pilot study findings to the method and instruments used to reveal expected findings and answer the research question(s) (RQ's) are provided in Table 10.

Table 10. Relationships of existing research, theoretical framework and pilot study to methods and instruments used to reveal findings and research questions (RQ)

Based on	Expected Findings	Method/Instrument to be used to potentially reveal these findings	RQ
Literature Review Pilot	Instructors using some of the strategies having the potential to promote learning-centered dialogue online	Instructor interview SWBCS observations	What
TD theory Pilot	Instructors using new strategies to promote learning-centered dialogue online	Instructor interview SWBCS observations	What
Literature Review Pilot	Instructors using SWBCS tools to implement strategies having the potential to promote learning-centered dialogue	SWBCS observations	How
Pilot instructor interviews	Instructors use of strategies to promote learning-centered dialogue & SWBCS tools to implement strategies	Instructor interviews SWBCS observations Delphi	Why
Pilot	Recommendation of strategies having the potential to promote learning-centered dialogue (previously known or new)	Delphi	Why
Pilot	The use of strategies having the potential to promote learning-centered dialogue is perceived effective	Instructor follow-up interview SWBCS observations Student post-survey, follow-up interviews	Perceived Effective
Pilot	The use of SWBCS tools to implement strategies having the potential to promote learning-centered dialogue is perceived as effective	Instructor follow-up interview SWBCS observations Student post-survey, follow-up interviews	Perceived Effective

### *Research Design*

This research was conducted as a multiple qualitative case study. It describes, analyzes and explains the instructional strategies used by instructors to promote dialogue in the synchronous web-based classroom, Elluminate Live! Yin (1994), states that, “specific research strategies have distinct advantages in certain situations. For a case study: a how or why question is being asked about a contemporary set of events over which, the investigator has little or no control” (p. 9). Therefore, qualitative research strategies were deemed appropriate for this study.

### *Data Collection*

Several methods of data collection were implemented in this study. The Delphi method, observations, interviews, surveys and journaling were combined to capture the breadth and depth of what, how and why instructional strategies have the potential to promote learning-centered synchronous dialogue online.

A brief description of what constituted a case in this study and the overall setting, is followed by a research plan diagram (Figure 5). The research plan provides a visualization of the how the investigation played out. It also provides a framework for the structure of this chapter. This chapter is organized by method and the sequence in which the method occurs although some of the methods, for instance, reflective journaling, occur throughout the study.

### *Ethics*

Qualitative research fundamentally involves building relationships with participants. Naturally, the qualitative researcher conducts interviews in a conversational manner so as to encourage participants to respond honestly and openly. The task of the qualitative researcher is to create a framework in which participants can respond in a way that represents accurately and thoroughly their point of view about their experiences while also maintaining the integrity of the research by following professional ethics. During this study the researcher protected participants from harm by obtaining their express and informed consent including an explanation of the nature, purpose and implications of the study as well as the confidentiality and security of the data.

### *A Case*

A case in this study was the instructor, the course that the instructor was teaching in that semester, the students in that course and the synchronous sessions conducted within the context of that course. The sample of cases was nonprobabilistic and purposeful. The sample was chosen such that the most could be learned. The basis for selection of cases was the level of commitment the instructors were willing to make for the duration of the study.

### *Setting*

This study took place at a large research university. The time period for this study was one academic semester, with each instructor using the SWBCS at least twice. The

asynchronous learning management system for the courses was Blackboard. The courses under study varied in content area. See Appendix K for a detailed description of the setting.

### *Research Plan*

The Delphi method is described first as it was conducted first in this study sequence. After the Delphi process got started, instructor participation was solicited (see Appendix E). Following instructor-participant selection, initial face-to-face interviews were scheduled and conducted. In addition to face-to-face interviews, additional information was gleaned or clarified in emails, phone calls or via Elluminate Live!. Practice sessions were scheduled. The initial student, pre-synchronous survey was administered at the beginning of the first Elluminate Live! session for the semester. Then, the series of real-time, instructional Elluminate Live! sessions were held on the dates and times arranged by the instructor. The researcher aimed to observe sessions as they occurred, in real-time. The sessions were recorded for observation by an additional observer for review later. A post-synchronous student survey was administered to students at the end of the last live Elluminate Live! session. Follow-up email reminders were sent via Blackboard following administration of the post-synchronous student surveys via Blackboard to solicit participation from additional students if for some reason they did not complete the survey at the end of the session. The research plan is displayed in Figure 5.

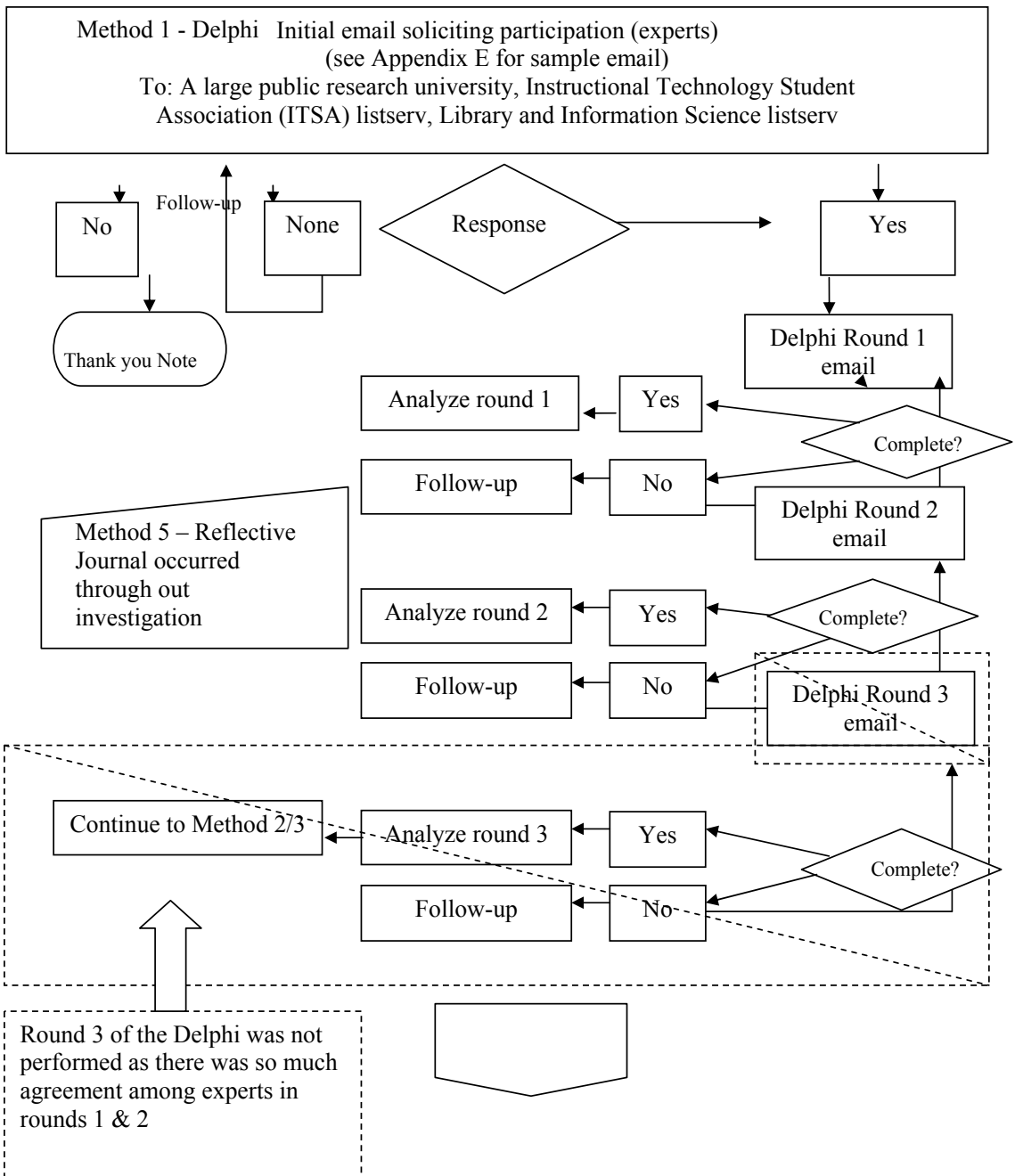


Figure 5. Research plan



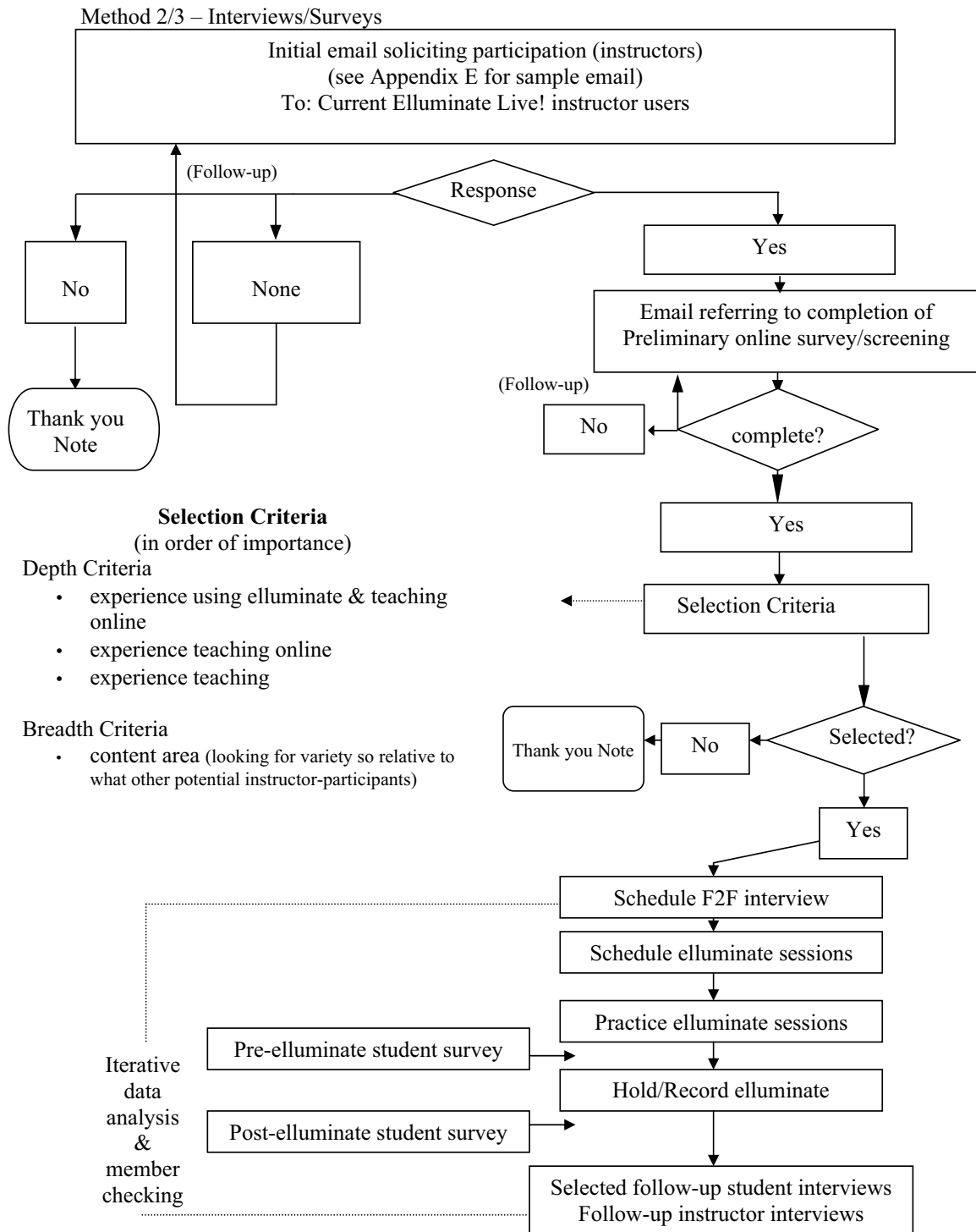


Figure 5. Research plan (Continued)

Method 4 – Observations

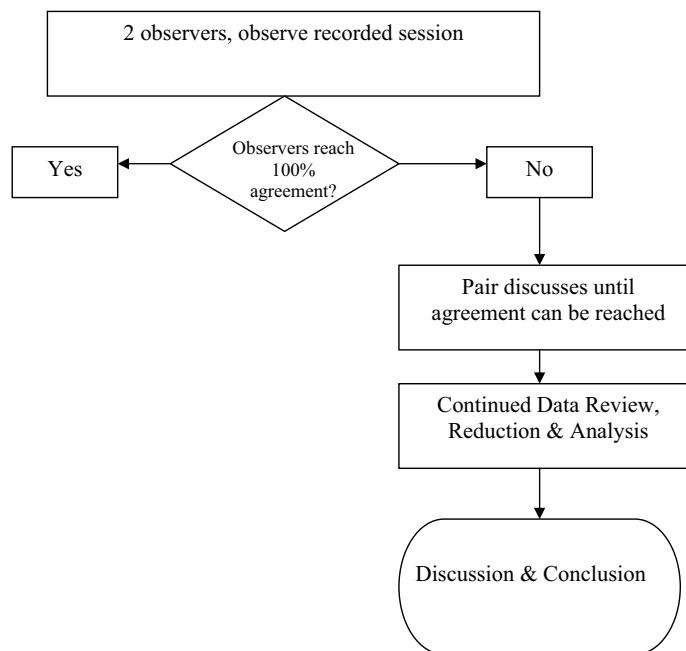


Figure 5. Research plan (Continued)

*Method 1 – Delphi*

The Delphi technique was used by the researcher as a data collection tool. The main purpose of the Delphi method is to, “...obtain the most reliable consensus of opinion of a group of experts” (Dalkey & Helmer, 1963). This method served to illuminate what, how and why instructional strategies are used to promote learning-centered dialogue in the synchronous environment online from an expert perspective.

*The purposeful sample.* To be considered an expert for the purposes of the Delphi in this study, a distance education expert is an individual who has an advanced degree (Ed.S. or Ph.D.) in Education, Instructional Technology or other related field. In addition, the individual must have a minimum of three years of teaching experience in the online environment and conducted synchronous sessions for at least two semesters prior

to participating in this study. The individual should also have published on a regular basis in this field. Selection of Delphi experts had two main criteria. Preferential selection was given to those experts having the most experience teaching with a SWBCS. Secondly, to obtain the most variability among instructional strategies, instructors teaching in a variety of content areas were also sought. These criteria were verified by requesting the expert's curriculum vitae and syllabi for the courses they teach. Delphi experts were notified that they were expected to participate in all three rounds of the protocol. Responses to each round were expected within one week of receiving the email containing the Delphi questions.

The experts were garnered from a few sources. These sources included an instructional technology listserv and a library and information science listserv as many of the instructors in these programs used a SWBCS. Another source for the distance education experts was the Multimedia Educational Resource for Learning and Online Teaching (MERLOT). MERLOT is a free and open resource tool for higher education with membership around 12,000 college professors and instructional designers who share and peer-evaluate their web resources and materials. Previous researchers have surveyed MERLOT members in the area of distance education with about 5% of those elicited to participate actually completing the survey (Kim & Bonk, 2006). The number of experts in Delphi methodology varies but in general is similar to that of focus groups, 20 experts being about the maximum number to be handled efficiently in this setting. In total, a group of 13 experts (see Appendix H) completed both rounds of the Delphi before the

technique was discontinued due to high levels of agreement. Initial demographic questions were used to screen the individuals, ensuring that they met the minimum requirements listed above to be considered a distance education expert. A sample email sent to solicit expert participation is in Appendix E.

Using an online survey service, Survey Monkey, and based on the procedures put forth by Egen and Akdere (2005) this Delphi study entailed two electronic rounds. In round one, experts were presented with the instructional strategies found to promote dialogue from the literature review and pilot study: Then they were asked if they *used* any of those strategies when they teaching using Elluminate Live! After that, they were asked if they agreed that those strategies did indeed promote dialogue in the synchronous environment online. If they did not agree with the fact that a particular strategy promoted dialogue they were encouraged to provide a rationale. The experts were also asked to add any additional strategies that they agreed had the potential to promote synchronous dialogue online. Data collected from round one was analyzed using constant comparison.

In round two, experts were presented with the results, the themes identified as instructional strategies that promote learning-centered dialogue in the synchronous online environment between instructor and learner from the first round. Then the experts were asked to keep themes they agreed with. They were also encouraged to add themes or subtract themes completely, providing a rationale for doing so.

## *Method 2 – Instructor Interview*

*The purposeful sample.* The sample of instructors was nonprobabilistic and purposeful. Merriam (1998), in a discussion of qualitative sample selection states that, “the most appropriate sampling strategy is nonprobabilistic” (p. 60). This type of sampling relies on the idea that the sample was chosen such that the most can be learned. Therefore the basis for selection of instructors was mainly their interest in participating as well as encouraging their students to participate. Another basic requirement was that the instructor agreed to use the SWBCS a minimum of two times. Variability was introduced by selecting instructors that taught in different content areas.

*Soliciting participation.* The instructor sample was selected from the population of willing Elluminate Live! users at a large university. There are two main components of the sampling criteria, depth and breadth. The depth of the study came from preferential selection of instructors who had experience using Elluminate Live! in their courses and planned to continue using it at least two times in the semester of the study. It was observed in the pilot study that when instructors have prior experience using Elluminate Live!, they tend to focus more of their “teaching energy” on pedagogy, having fewer technical problems to interfere with their sessions. Due to the fact that this study revolved around instructional strategies, depth in this area was preferred. The breadth component came from examining different content areas. In the pilot study, two instructors taught similar content, conceptual in nature and having to do with technology and education. Many of their instructional strategies were similar, including, whole class discussion, use

of the whiteboard as a presentation tool and small group discussion in break-out rooms. On the other hand, the third instructor taught foundations of educational measurement, a relatively more concrete subject matter. He mainly used a lecture format, but stopped frequently to check comprehension and wait for questions. He also used several case studies to illustrate and review application problems. Thus the breadth component, an effort to capture a variety of instructional strategies on the stance that different content areas may indeed result in the use of more variable instructional strategies.

*Interview protocols.* An initial face-to-face interview with each instructor took place prior to use of the SWBCS. Conducting a face to face interview was important to build rapport and notate body language. This is not to say that email, phone or Elluminate Live! interviews were excluded. The initial face-to-face semi-structured interview addressed the following: (a) background, educational, teaching, professional (b) educational philosophy and teaching style (c) instructional strategies to be used to promote dialogue online (Kanuka, H., Collett, D., & Caswell, C., 2002) and (d) anticipated use of SWBCS to implement the instructional strategies. One of the most informative questions was, “What is your educational philosophy? Tell me about it.” The initial interview was recorded and stored on the researcher’s computer. Data from the interviews were analyzed using constant comparison. Member checks were conducted to maintain an active corroboration on the interpretation of data between the researcher and those who provided the data.

A follow-up interview was conducted towards the end of the semester after the synchronous sessions took place. The main point of this interview was to get an idea of

the perceived effectiveness of the strategies and tools used in the SWBCS. Also, it aimed to gather information from the instructors that may guide future instructor users of a SWBCS. The interview protocols can be found in Appendix A.

### *Method 3 - Student surveys*

An initial web-based student survey was administered to the students in the courses of each case to garner the following information: (a) demographic (b) prior experience with distance education courses and (c) expectations for dialogue. This information provided baseline data about the students and their expectations for the course in terms of dialogue. The initial web-based student survey was originally developed by Schullo (2005). She reports that the survey, “provides a good picture of students enrolled in the courses that make up each case” (p. 99). Replication overcomes some of the limitations of case studies therefore; the use of Schullo’s student survey instrument was warranted with a few modifications to address this inquiry more specifically. Schullo’s survey was modified for use in the pilot study to include items regarding student expectations about dialogue with their instructor and other students. Several items were added regarding how students perceived themselves in terms of learner autonomy. Pilot study data was used to further shape the instrument originally developed by Schullo. The items about why the students enrolled in the course at a distance were removed as they were answered by only 10% of the survey participants and of those few who responded to this item at all, most reported that they enrolled in the course because it was required by their program of study. These data were not particularly relevant information to this inquiry.

The items added to gain information about student expectations for dialogue and learner autonomy were very specific, for instance, in the pilot study, students were asked the following; “To what degree are you an autonomous learner in GENERAL?” and “To what degree are you an autonomous learner in THIS COURSE?” Inevitably, students would answer these two types of questions with the exact same response. The same phenomenon occurred with the dialogue they expected in general from their instructors, the dialogue they expected from their instructor in this course, and the dialogue they expected from other students in general and the dialogue they expected from other students in this course. Therefore, the researcher combined these questions in a more general sense, for instance, referring back to the first example, the item has since been modified to, “To what degree do you consider yourself an autonomous learner?”

Prior to actually taking the survey, the researcher preferred to solicit student participation directly via an email sent through Blackboard. A draft of this email is shown in Appendix E. The email was sent via Blackboard, the learning management system which enabled the researcher to send an email to all the students in the class. This system also provided the advantage that the researcher does not know who did or did not fill out the survey, only sheer numbers. By comparing the total number of students in the class to the number of students who have completed the survey, the researcher could get some idea of response rates.

The pre-synchronous student survey was administered to students at the beginning of their first Elluminate Live! session. Students were provided a survey link several



minutes prior to the start of the Elluminate Live! Usually, it took students 3-5 minutes to complete the survey. The post-synchronous student survey was administered at the end of the last Elluminate Live! session for the semester, via a web link. This web-based student survey, also originally developed by Schullo (2005), was administered to the students in the courses of each case to determine their perceived effectiveness of the instructional strategies and the SWBCS tools. Schullo's original end of the semester student survey was modified to include items regarding perceived effectiveness of the dialogue that the students experienced.

Analysis of pilot study data revealed that students responded with descriptive information about the dialogue they experienced. Due to the fact that the data collected in the end of semester student survey was deemed useful for this inquiry the survey remained virtually the same. These data served to inform instructors about the perceived effectiveness of their instructional strategies. The student surveys administered in the pilot study and the revised student surveys for use in this study can be found in Appendix B.

The last question in the post-synchronous session survey asked students if they would volunteer to be interviewed about their Elluminate Live! experiences. If they were willing to do so, they are asked to provide an email address or phone number so that the researcher may contact them. The student interview protocol is provided in Appendix F. For each of the cases, three to four students volunteered to be interviewed.

#### *Method 4 – Participant Observations*

A minimum of two synchronous session recordings were observed for each case. Schullo (2005) developed a comprehensive SWBCS observation instrument, following her study she recommended in reference to the use of the instrument that, “It would benefit others interested in the same types of data to focus the instrument and reduce the number of items used in each area” or “It might be useful to divide the instrument into multiple instruments and concentrate further research on just one aspect” (p. 270). This study implemented both suggestions, using a scaled down version of Schullo’s instrument, focused on the area of instructor-learner dialogue. In addition, the basis for the instrument developed for this study included the instructional strategies having the potential to promote dialogue elicited from the literature review and Delphi process.

Two observers, the researcher and one other analyst observed each session for each case using the observation tool. The two observers had discussed how to use the instrument before observing the sessions. If observers did not agree on whether a particular strategy occurred these discrepancies were reviewed. There were few disagreements, but when there were, both observers went back to the recording and decided together how to resolve the issue and come to consensus. Inter-rater reliability was calculated for each case. The initial average inter-rater reliability ranged from 85% to 97%. The process used to come to agreement was repeated for other such instances until 100% agreement was reached.

As a result of the pilot study the researcher learned that in order to be more efficient, it would be a good idea to be more careful about documenting time stamps in case there was a need to go back to the recording again to study a particular strategy more carefully. The notes area of the observation tool proved to be quite useful. This area allowed the researcher to document any information about instructional strategies, anomalies or new phenomena that were not accounted for on the nuts and bolts area of the observation tool built from the literature review. The observation instrument can be found in Appendix C.

It should be noted that the presence of a researcher participant-observer may possibly influence the behavior of those being observed. However, given the fact that the researcher as participant-observer logged into the SWBCS the same way as the students, becoming just another name on the electronic roster, it is suspected that the researcher, in this role, had minimal influence.

#### *Method 5 - Researcher Reflective Journal*

*Role of the researcher.* As a data collection instrument, I describe my qualities as researcher. I hold a teaching certificate in chemistry, grades 6-12 and educational media, grades k-12. I have six years of instructional experience as a high school science teacher and media specialist. I am a doctoral candidate in the curriculum and instruction program with emphasis in Instructional Technology at a major research university. I am currently employed as an instructional designer at a major research university, mainly developing web-based training solutions for mental health professionals. This puts me in a position

to be both learned and skilled in curriculum and instruction, design and development. My background provides the expertise necessary to make educated observations and interpretations.

*Role of the qualitative researcher.* Qualitative researchers, while describing and explaining their roles, acknowledge that the very reason they are using these techniques is to get to the HOW and WHY of LIVED experiences and so acknowledge, accept and support the subjectivity of that experience in order to understand the setting under study. As the researcher, I have been trained in qualitative research methods in several doctoral level courses including, Qualitative Research Designs and Issues in Curriculum and Instruction which emphasized qualitative research methods for the study of educational systems.

As a researcher, I have been part of several research projects, having conducted several of the qualitative methods and data analyses. My current project includes semi-structured interviews with experts in the field of mental health. Experts complete a brief interview/survey protocol online. Then I contact them to ask more specific questions and obtain real-life examples from their experiences in the field. The information obtained from these interviews is used to develop and enhance curricula for web-based training and education. Once the web-based training is developed, these same experts review the content and another round of interviewing ensues. These follow-up interviews occur in several forms, e-mail and phone are commonly used as well as an online survey tool that allows comments to be submitted at any time. Data collected from follow-up interviews

is used to revise and improve the web-based training. This is an iterative process that takes several months and involves experts from various levels of local, state and federal government, stakeholders in the community, and a variety of professionals in the field. I have also conducted similar interview protocols as part of the Pinellas Needs Assessment project, completed in May 2005. I am also part of a team that presented at the American Educational Researchers Association Conference (Chicago, 2007), “Distance Learning as Seen Through the Eyes of its Literature: A Co-Word Analysis”. Although involved in all aspects of the project, one of my main roles was to conduct the qualitative data analysis portion of the project.

Janesick (2004) provides a list of “Attributes of the Qualitative Researcher” (p. 123-24), derived from over 20 years of reflective discussion forums. These, “attributes needed to conduct and complete the project” include: (a) a high tolerance for ambiguity (b) a strong determination to complete the study fully (c) willingness to commit to time in the field and equal time in analysis, (d) ability to know one’s self (e) resourcefulness and patience (f) compassion, passion and integrity (g) above-average writing ability (h) ability to focus and not allow distractions and, (i) discipline to write everyday. In my own opinion, I do in fact possess these attributes but not only that, have developed them throughout my doctoral student tenure. Case in point, another qualitative project I developed was an autobiographical video, produced in order to convey my, “Educational Journey”. This video has since been presented in several venues including, Gatekeeper Training – Florida Statewide Prevention Conference. The video production process was

an extremely educational experience, in terms of technology, having to learn and use effectively several Adobe software packages including Photoshop and Premiere Pro. In addition, the process of evaluating oneself, in a reflective sense, having to answer to oneself for whom one has become, is and will continue to be is a pivotal experience. An appreciation of, a commitment to and a willingness to conduct qualitative research can make the results of such a “journey” worthwhile.

I recognize the potential influence my expertise may have in recommending particular instructional strategies. While I encouraged the instructors to participate, any intended influences stopped there. In fact, I took care not to suggest any particular methods, approaches or strategies, instructional or technological.

In order to document the entire study experience, I kept a reflective journal “to provide a data set of the of the researcher’s reflections on the research act” (Janesick, 2004, p. 143). The journal functions as a data collection and organizational tool to keep track of communications, significant events and ideas. Throughout the study process, the journal served to show how the study evolved.

#### *Data Reduction and Analysis*

In a qualitative study, the process of data reduction and analysis is iterative, basically from study inception to final report (Miles & Huberman, 1994). Initial review of the data helped focus the study on particular aspects of the information, those that address the research questions. The pilot study data also served to gauge the types and categories of data that emerged.

The Delphi process set the stage for pedagogy categorization, as the data collected from experts was categorized and reduced iteratively to facilitate the rounds. To view a sample of instructor interview data reduction, analysis and compilation, see Appendix D. The observation instrument also served as a preliminary data analysis tool as it was set up to reflect several initial categories for data including, instructional strategies that promote social presence being separate from instructional strategies that promote dialogue directly. The observation tool also provided for a structure element. The student surveys contributed to data categorization as they collected data on learner autonomy, perceived effectiveness of the SWBCS, SWBCS tool use and descriptions of how the instructor primarily used the SWBCS. A sample of student demographic data that has been analyzed and summarized into descriptive statistics is provided in Appendix D.

### *Conclusion*

This chapter has provided an overview of the method that this study utilized to examine what, how and why instructional strategies promote learning-centered dialogue online. The relationships between existing research, the theory of transactional distance, the pilot study, this inquiry and the methods appropriate for this investigation have been presented. A variety of data collection procedures were used to allow for triangulation of data. The process used in the pilot study was a solid beginning and led to some informed changes for the rest of this inquiry. The pilot study also allowed the researcher to use the data analysis technique that served to reduce the data. The use of the iterative, constant comparison comparative method was deemed suitable.

## Chapter Four

### Data Analysis and Results

Data collection for this study took place throughout an academic semester. Several types of data were collected, Delphi consensus, interview, observation and survey. The methods used to collect these data were implemented at strategic times throughout the semester as outlined in Chapter 3. Data collection, reduction and analysis were iterative. This chapter discusses these data starting with the first data collection procedure, the Delphi, because it was used to inform further data collection. The presentation of Delphi results and analysis is followed by a brief introduction to each of three cases. An overview of the cases is then presented. Following the overview, data are presented on a case-by-case basis. A case included the course, instructor and students. Each case is displayed with a chronological basis in mind; following the implementation of methods throughout the flow of the semester. Throughout each case, summary comments follow, based on the research questions.

#### *Delphi*

The Delphi technique was used by the researcher as a data collection tool. This method served to illuminate which instructional strategies experts use and which instructional strategies that they consider have the potential to promote learning-centered synchronous dialogue online.



### *Expert Sample*

To be considered an expert for the purposes of the Delphi in this study, a distance education expert is an individual who has an advanced degree (Ed.S. or Ph.D.) in Education, Instructional Technology or other related field. In addition, the individual must have a minimum of three years of teaching experience in the online environment having conducted synchronous sessions for at least two semesters prior to participating in this study. The individual should also publish on a regular basis in this field.

The expert pool came from a few different sources. These sources were an instructional technology listserv and a library and information science listserv as many of the instructors in these programs were known to use SWBCS, instructionally. A message with a brief study description and link to the first consensus building exercise was e-mailed out to these sources (see Appendix G). Twenty-two potential experts responded to the first round. Of these 22 people, 13 met the expert criteria and were asked to participate in the remaining rounds of the consensus building exercise. Appendix H lists the 13 experts and the information that qualified them as such. It should be noted that a majority of the experts in this study had an affiliation with the university in this study at some point. This affiliation may have been as a graduate or employee of the university. It is possible that since this group was homogeneous in this way that this limits the spectrum of feedback they provided.

### *Expert Consensus – Round 1 Results*

*Strategies that experts use.* Experts were first asked if they used any of the instructional strategies that have the potential to promote learning-centered, synchronous dialogue online. The list that the experts were presented with was developed from the literature review and pilot study. Experts selected from three options, “yes” to indicate that they had used the strategy, “no” to indicate they had not used the strategy or “not familiar” if they did not know what it was or what it meant. Table 11 displays the strategies the experts were presented with and the number of experts who agreed that they used it.

The results displayed in Table 11 indicate that a majority of experts agreed that they used each of the strategies listed. Such high levels of agreement indicate that the list that experts were presented with does indeed include a well-established list of instructional strategies that are used by experts to promote synchronous dialogue online.

Table 11. Instructional strategies that experts *use* to promote learning-centered synchronous dialogue online.

Instructional strategy	Experts that report use	
	#	%
Developing Social Presence: for instance, using casual language, humor, rapport-building and/or greetings when addressing students	(13)	100
Gaining student attention	(12)	92
Providing opportunities for discussion	(13)	100
Providing prompt/corrective feedback	(13)	100
Assigning Group work	(13)	100
Adapting content to learner preferences, skill-levels or intelligence-levels	(12)	92
Communicating high expectations: for instance, modeling	(9)	69
Emphasizing time on task	(8)	62
Respecting diverse talents and ways of learning	(13)	100
Reinforcing ideas, concepts and knowledge	(13)	100
Encouraging active learning	(13)	100
Encouraging interaction: for instance, between instructor and student, among students	(13)	100
Providing class structure: for instance, syllabus, due dates, agenda for each class	(12)	92

*Strategies that experts deem effective.* Experts were then asked whether they agreed or disagreed that the following instructional strategies had the potential to promote learning-centered, synchronous dialogue online even though they may not necessarily use those strategies themselves. Table 12 displays the instructional strategies that experts were asked to agree or disagree with in terms of their potential to promote learning-centered synchronous dialogue online. This is the same list that experts were presented with in the first question but a different question is being asked about the list, i.e. do these strategies have the potential to promote learning-centered synchronous dialogue online?

Results in Table 12 indicate that a majority of experts agree that the strategies presented to them do indeed have the potential to promote synchronous dialogue online. It makes sense that the experts would respond in virtually the same way as in the question before because if an instructor *uses* a strategy they likely believe it has some value to their lesson and/or educational philosophy/style and agree that it “works”. Also, the strategies on this list have already been shown in the literature and pilot study that they have the potential to promote dialogue. Finally, it is also logical to imagine that any of these changes *could* promote dialogue, if implemented successfully.

Table 12. Instructional strategies that experts deemed effective for the promotion of learning-centered synchronous dialogue online

Instructional strategies that experts deemed effective for the promotion of learning-centered synchronous dialogue online	Experts that agree #	%
Developing Social Presence: for instance, using casual language, humor, rapport-building and/or greetings when addressing students	(13)	100
Gaining student attention	(12)	92
Providing opportunities for discussion	(13)	100
Providing prompt/corrective feedback	(13)	100
Assigning Group work	(13)	100
Adapting content to learner preferences, skill-levels or intelligence-levels	(13)	92
Communicating high expectations: for instance, modeling	(13)	100
Emphasizing time on task	(10)	77
Respecting diverse talents and ways of learning	(13)	100
Reinforcing ideas, concepts and knowledge	(12)	92
Encouraging active learning	(13)	100
Encouraging interaction: for instance, between instructor and student, among students	(13)	100
Providing class structure: for instance, syllabus, due dates, agenda for each class	(13)	100

If an expert checked off “disagree” with regard to whether an instructional strategy had the potential to promote learning-centered synchronous dialogue online, the expert was asked to provide a reason. Table 13 displays the reasons that experts provided for why they checked, “disagree” when asked whether an instructional strategy had the potential to promote learning-centered synchronous dialogue online. Just because experts were asked to provide a reason for disagreement does not mean they always did so.

Table 13 reveals that experts did not agree with some of the strategies they were presented for several reasons. The reasons were variable. One expert did not use group work due to student disdain for it. Another expert did not adapt content to various student skill and/or intelligence levels because he basically felt as though that wouldn't be fair to cater to individuals. The reasons that experts did not agree with emphasizing time on task was not so much that they didn't think the strategy was useful or effective but simply that they did not understand what it was without further explanation. That explanation was provided in round 2. Again, one expert did not necessarily disagree with the use of or effectiveness of providing structure but more so with the way it was delineated in the list he/she was presented with.

Table 13. Reasons that experts provided for why they checked, “disagree” when asked whether an instructional strategy had the potential to promote learning-centered synchronous dialogue online.

Instructional strategy	Reason for disagreement
Assigning Group work	Many students hate group work and are adverse to spending time on task, even when in a classroom situation.
Adapting content to learner preferences, skill-levels or intelligence-levels	Many students hate group work and are adverse to spending time on task, even when in a classroom situation.
Emphasizing time on task	I may not understand the time on task strategy. But in my experience "flow" is an ideal learning state in which participants are not aware of the passage of time.
Providing class structure: for instance, syllabus, due dates, agenda for each class	Emphasizing time on task: I don't see the connection between emphasizing time on task and learning-centered, synchronous online dialog.
Providing class structure: for instance, syllabus, due dates, agenda for each class	Providing agenda is not the same as providing the rest - this strategie alerts the student to the dicussion which then allows learner-centered emphasis - without the topic - student may not have the background to participate

Finally, experts were asked to, “Please describe any other additional strategies that you *use* to promote learning-centered synchronous dialogue online (or that you think would be useful for promoting learning-centered, synchronous dialogue online).” Several additional strategies were provided. These strategies include: (a) student chat rooms, (b) case studies, (c) student led-presentations, (d) keeping office hours in the synchronous

environment online and (e) facilitating multiple threads of conversation in the direct messaging (text chat) area. While the additional strategies experts provided are simply listed here, a further discussion of them will follow when data are triangulated. This section concluded round 1.

### *Expert Consensus – Round 2 Results*

*Emphasizing time on task.* It seemed there was a bit of confusion about what “emphasizing time on task” meant based on the two comments provided by experts as to why they checked disagree when it came to this strategy having the potential to promote learning-centered synchronous dialogue online. Therefore, in round two, experts were provided with the operational definition of “emphasizing time on task” for the purposes of this study which was, "Focuses the discussion and lecture by displaying slides showing the current course topic or discussion item. Communicating to students that their presence and effort is purposeful" (Chickering & Gamson, 1986; Knolle, 2002). Again, experts were asked to agree or disagree with whether this strategy had the potential to promote learning-centered, synchronous dialogue online. Adding this definition resulted in further disagreement, as now, only 77% of the experts agreed that emphasizing time on task was a strategy having the potential to promote learning-centered, synchronous dialogue online. This is one less expert than before the definition was presented to the experts. Table 14 lists the reasons that experts gave for why emphasizing time on task did not have the potential to promote learning-centered, synchronous dialogue online.



Table 14. Reasons experts gave as to why emphasizing time on task did not have the potential to promote learning-centered, synchronous dialogue online.

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Emphasizing time on task, reasons it's not necessarily dialogue promoting	
1	The definition and title don't seem to fit—confusing
2	Trends to promote lecture format which too often limits student participation to one sense. (passive hearing)
3	Slides are not an interactive medium. A whiteboard is more likely to promote learning-centered dialogue. If the teacher focuses too much on "task" the student may not have an opportunity to explore the territory. I think a good teacher can contribute guidance to the dialogue in better ways than by posting a slide.

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Reasons number two and three are in the same vein and are particularly poignant for two reasons. Slides in and of themselves are not interactive as they are simply a form of media not a method. For example, slides *and* an activity based on those slides, was one component of instructor 2's philosophy that allowed students to interact with the presentation, instead of passively viewing it. Also, a "good" teacher does have the ability to ebb and flow with the content and needs of the learners to promote dialogue using creative methods. Good teachers display, "with-it-ness" regardless of the teaching environment (Kounin, J.S., 1970).

In round 2, experts were presented with all of the additional strategies that their counterparts listed as having the potential to promote synchronous dialogue online. Then they were asked to indicate whether they agreed or disagreed that these strategies did in

fact have the potential to promote learning-centered, synchronous dialogue online. Another option that experts could select was, “not familiar with this strategy” in case they did not know what it meant or what it was. The results of this inquiry are displayed below in Table 15.

Table 15. Additional instructional strategies having the potential to promote learning-centered, synchronous dialogue online as provided by experts and levels of agreement

Additional instructional strategies provided by experts	Experts that agree	
	#	%
Student chat rooms	(12)	92
Case studies	(13)	100
Student led presentations	(12)	92
Keeping office hours in the synchronous environment online	(11)	85
Facilitating multiple threads of conversation in the direct messaging (text chat) area	(11)	85

There are several possible reasons as to why experts agreed with the additional strategies that promote dialogue provided by their peers. For one thing, the qualifications of these experts include the use of an SWBCS before. Since these are experts in this field, they have used and/or taught others to use the more advanced features of the SWBCS. e.g. allowing students privileges to present their own materials and arranging their own sessions for office hours. As explained earlier, “good” teachers display their perfected strategies regardless of the environment. This set of experts have honed their instructional strategies outside of the SWBCS and then transferred those strategies to the SWBCS.

If an expert checked, “disagree” they were asked to provide a reason as to why they did not agree that the strategy had the potential to promote learning-centered synchronous dialogue online, shown in Table 16.

Table 16. Reasons experts gave as to why an instructional strategy did not have the potential to promote synchronous dialogue online.

Additional instructional strategies	Reason expert gave to disagree
Student chat rooms	I agree that student chat rooms could enhance time on task, but it's always possible that students will drift off topic. Maybe that one is a "maybe" for me - which was not of the choices.
Keeping office hours in the synchronous environment online	I do not disagree with keeping online office hours - however, I find it more productive to email questions and responses as well as discussions over the phone. don't think synchronous office hours would be well attended. Students know they can reach me anytime by email/phone.
Facilitating multiple threads of conversation in the direct messaging (text chat) area	Unless you bring them to the syn discussion - may be distracting and change the focus of the dialogue Facilitating multiple threads of conversation in the direct messaging (text chat) area. --- I think having multiple simultaneous discussion threads is better suited to asynchronous delivery. In a synchronous mode, multiple conversations going on at once (just as in a face-to-face environment) can be confusing and a tough strategy to monitor. It may also draw student attention away from the learning objectives desired or content topics being presented.

There were only three reasons provided for disagreement. Of note is the fact that two of those reasons were nearly the same, i.e. in both cases the experts mentioned that students can get distracted in chat rooms and synchronous discussion threads. One expert explained that she did not agree with keeping office hours in the SWBCS because she anticipated poor attendance. However, she offered several other avenues of communication, e.g. email and phone, for students to use so they wouldn't necessarily be drawn to a scheduled office session, synchronous online or face to face. This same phenomenon was encountered by Kelsey (2004).

Results from both consensus building rounds revealed that a majority of experts not only *use* but also deem effective the list of strategies they were presented with. The levels of agreement were high. Several reasons for high levels of agreement include, (a) a well established list of strategies from the literature and pilot study, (b) most strategies have the potential to promote dialogue if implemented successfully (whether they are used or not by the experts), (c) reasons for disagreement did not necessarily relate to the strategy itself but perhaps a misunderstanding of what it was and (d) the strategy could potentially distract students if implemented incorrectly or without monitoring. High levels of agreement in round 2 indicated to the researcher that nearly all that could be learned from this Delphi exercise was accomplished. Therefore, the Delphi portion of this study was closed after two rounds.

### *Summary of Delphi Results*

The results of the Delphi exercise led to a few additions to the observation instrument. All of the additional strategies that were provided by experts were added to the observation instrument because a majority of the experts agreed that those strategies had the potential to promote learning-centered synchronous dialogue online.

In terms of the research questions, the Delphi method and the data collected thereby revealed that a majority of the experts reported that they used the strategies presented to them as gathered from the literature and pilot study. Also, there were a few additional instructional strategies beyond those elicited from the literature and pilot study that have the potential to promote learning centered synchronous dialogue online. Those instructional strategies, as provided by experts, are: (a) student chat rooms (b) case studies (c) student led presentations (d) keeping office hours in the synchronous environment online and (e) facilitating multiple threads of conversation in the direct messaging (text chat) area.

### *The Sample Overview*

#### *The Instructors & Their Courses*

As was the case with Schullo's study (2005), nonprobabilistic purposeful sampling was used to choose instructors. Schullo's study called for preferential selection of faculty who had taught via the web, faculty who taught at a distance rather than those who taught blended courses. In Schullo's study, seven instructors were originally chosen. In this study, the sample was originally made up of five instructors. In both cases, the instruc-

tors had a pre-Elluminate use interview. At this point the sample in Schullo's study was reduced to five instructors who taught blended courses. The reasons for the reduction of this sample were, "...there were not enough fully web-based courses available" (p.68) and "One instructor was removed for lack of participation from the students in the survey (p.97) In a similar vein, during the data collection period of this study, two of the instructors were dropped due to lack of participation from students in the surveys.

Presented here are events that led up to the drop of those two instructors. As stated in chapter three, the researcher preferred to be granted access to the instructor's course via Blackboard for communication purposes. Even after being assured by the instructors that they would indeed provide this access to the researcher, two ultimately did not. The researcher continued with the research plan as outlined in chapter three, relying on the instructors to pass along communiqué to students. Student survey response rates were poor, despite three reminders to the instructors and pleas for soliciting student participation. After the first Elluminate session had passed there was no sense in collecting pre-Elluminate student survey data as the students would already have been exposed to the synchronous environment online. The aforementioned events provide the background that led to these two cases being dropped.

In this study, variability was introduced by selecting instructors that had reported different teaching philosophies and styles, had varying levels of experience, and/or taught in various content areas. The instructors also needed to have a committed interest in participating as well as be willing to encourage their students to participate. Another basic

requirement was that the instructor agreed to use the SWBCS a minimum of two times. Three instructors/cases completed the entire study. Table 17 displays the teaching philosophy and experience of these three instructors.

Table 17. Teaching philosophy and years of experience

Case	Teaching philosophy	Teaching experience
1	Active student engagement, andragogy	11 years
2	Student empowerment, instructor facilitation of this	22 years
3	Applied behavioralism	3 years

### *The Courses*

The courses under study were chosen based on the criteria set forth in chapter three. Those criteria were that the primary delivery mode was Blackboard and that the courses vary in content. The courses under study were from three different subject areas, public health, education and psychology. Each of them used the learning management system, Blackboard to deliver content, asynchronously. Face-to-face, asynchronous content delivery and synchronous meetings were part of each course, i.e. each course was considered blended. Although the courses were blended, this study examined only the synchronous sessions in order to replicate Schullo's (2005) study. The number of students enrolled varied from 10 to 23. Table 18 provides an overview of the courses making up each case.

Table 18. Overview of Courses

Case	College/Department/Level	Description/Delivery modes
1	Public Health – Children’s Mental Health Certificate Program, Graduate	Overview course in children's mental health. Topics include: epidemiology of children's mental health disorders, effective service interventions, psychopharmacology, systems of care, care management, wraparound services, and theories of change. Asynchronous content delivery/six face-to-face meetings/four synchronous meetings
2	Education – Instructional Technology Department, Master’s Degree Program, Graduate	This survey course provides information and skills necessary for administrators and teachers to effectively use the computer and application software to manage information. Asynchronous content delivery/two face to face meetings/three synchronous meetings
3	Arts and Sciences – Psychology Department, Minor in Behavioral Healthcare, Undergraduate	Beginning course focuses on behavioral healthcare services for children. Asynchronous content delivery/six face-to-face meetings/six synchronous meetings

*The Students*

A total of 42 students were enrolled during the course of this study, 39 of them participated in the pre-synchronous survey and 31 participated in the post-synchronous survey. Key responses from the pre-synchronous survey provided the researcher with an idea of student expectations of dialogue with their instructor, the response time they expected from their instructor and their self-reported autonomy. Overall, most students (74%) expected to dialogue with their instructor one time per week. Dialogue meant any



sort of interaction, for instance, an email exchange. When students initiated a dialogue instance, 78% of them expected a response from their instructor within 24 hours while the remaining 22% expected a response within 24-48 hours.

Autonomy was defined as, “learner self-direction”. Students were asked how autonomous they thought they were. They could select, “not autonomous”, “somewhat autonomous” or “very autonomous”. Forty-nine percent of the students self-reported that they were “somewhat autonomous” while the other 51% reported they were “very autonomous”.

### *Case 1*

#### *Sample*

*The course.* This study took place over one academic semester. The setting was a large, state university located in the southeast. The course under study was a graduate course offered through the College of Public Health. The course was offered in a blended format. The asynchronous learning management system, Blackboard, was the primary content delivery mode. Six class sessions were held face-to-face and four class sessions were held in the virtual SWBCS classroom, Elluminate Live! Table 19 provides a brief description of the course for case 1.

Table 19. Overview of case 1 - the course sample

Case	# Students enrolled	Description
1	11	Overview course in children's mental health that covers such topics as epidemiology of children's mental health disorders, effective service interventions, psychopharmacology, systems of care, care management and wraparound services, theories of change.

The target population for this course is, “Master's/doctoral level students in public health, social work, nursing, and other human services fields” as reported by the instructor.

*Study Logistics – Case 1*

*Practice sessions.* Several practice sessions were offered to students prior to the “official” session scheduled by their instructor. The practice sessions were conducted at various dates/times in an attempt to accommodate as many student schedules as possible. Most of the students did attend a practice session, how well it prepared them will be presented in the student post-synchronous survey data. A practice session involved getting the students connected to the Elluminate Live! interface, configuring their audio levels and orienting them to the Elluminate Live! tools. A practice session usually took 30 minutes barring any major connection issues. The purpose of the practice session was to weed out problems prior to the actual session so the instructor could maximize instructional time and students could feel comfortable enough to learn the content.

*Technical issues.* There were a few technological issues in case 1 that caused some initial turmoil but couldn't be helped. First, during this semester, Microsoft had just recently rolled out its new operating system, Windows Vista. Several students in this class had new computers with Vista as the operating system. Practice sessions were generally held in Elluminate Live! vRooms, which are free, 3-person, mini-Elluminate Live! classrooms. vRooms are running Elluminate Live! v8.0 which is compatible with Vista. Meanwhile, the university continued to use Elluminate Live! v7.0 on its server for offering fully-functional virtual classrooms. Elluminate Live! v7.0 was not built for use with Vista, two other versions of Elluminate Live! have rolled out, the latest being Vista compatible but the university had not yet upgraded. Generally, any connection issues would be solved in practice sessions before "real" class sessions took place in vRooms, again running Elluminate Live! 8.0. When it was time to connect to the full-fledged Elluminate Live! v7.0 classroom for scheduled sessions, students with Vista encountered connection issues. Eventually, a patch was enabled to allow Vista users to connect with Elluminate Live! v7.0 and this particular problem disappeared.

Also during this semester, Microsoft had recently rolled out Office2007. Several students had this new software package and prepared Powerpoint presentations with it. When it came time to upload the Powerpoint presentations created in Office2007, Elluminate Live! v7.0 would fail to convert them into usable whiteboard files. This was eventu-

ally solved by converting the Powerpoint 2007 files into jpeg's but nonetheless, it caused some uset during the first round of student presentations.

Finally, during the first SWBCS session, lightning and thunderstorms were occurring throughout the region where most of the students were located. This prevented students from staying connected to the Internet. Of course, this caused several students to get disconnected from the Elluminate Live! session and have to log back in, missing some of the class. Fortunately, the class sessions were recorded for review later. One student commented during a follow-up interview that the, "Weather was more of an annoyance than a problem".

#### *The Students - Case 1*

*Pre-synchronous survey.* A majority of the students in this course were graduate students 10 (91%), one student was non-degree seeking. Total enrollment in this course was eleven students. One hundred percent of the students in the course responded to the pre-synchronous survey. A majority of the students 10 (91%) reported that their native language was English, 1(9%) student reported their native language was Albanian. One (9%) student reported that he/she had not taken a distance education course before, while the remaining students 10 (91%) all reported having taken three or more distance education courses. Most of the students 7 (64%) reported they were not aware that the course offered/required a synchronous (real-time) online component. Eight (73%) of the students reported that the instructions for using the SWBCS were, "very clear". Nine (82%) of the students reported that they expected to dialogue with their instructor in some way (email,

chat, file exchange, discussion, phone call, meeting in person or share resources) once per week. Two (18%) students did not expect to dialogue with other students at all , 7 (64%) expected to dialogue once per week and 2 (18%) others expected to dialogue with other students 2-4 times a week. All (100%) of the students expected to hear back from their instructor within 24-48 hours upon contacting her for help of any kind. Nine (82%) of the students reported that they expected some or a little guidance from their instructor throughout the semester and two (18%) expected, “a lot” of instructor guidance. Three (28%) of the students considered themselves “somewhat autonomous” and 8 (72%) considered themselves “very autonomous”.

*The Instructor – Via the Instructor Interview*

*Education/teaching background.* The instructor in this case, initially began her career in social work. She has over 25 years of practical experience in this field having been a researcher and instructor for the past eleven. She has taught in the areas of children’s behavioral health, child welfare services and managed care structure, development and evaluation. She has her Ph.D. in social work and is currently an Assistant Professor. Prior to participating in this study she had taught one online course using the LMS, Blackboard. This instructor had not used a SWBCS before.

*Educational philosophy/style.* When this instructor was asked about her teaching philosophy and style she stated in regards to her educational philosophy, “I follow the constructs of andragogy, a belief system that adult learners can and do learn from active engagement with the topics in the curriculum, and from one another. Both in class and in their assignments, I attempt to foster active student engagement”. With regards to her teaching style, the instructor stated, “I believe that it is the instructor's responsibility to teach, and I teach every week typically using a powerpoint presentation, or I bring in content experts to teach various topics. Since there are so many "experts" in children's mental health here at the university, I try to make use of these resources. I also expect the students to participate actively, to do presentations, and to receive critical constructive feedback from their fellow students”.

*Anticipated Instructional Strategies*

These statements corresponded with the instructional strategies she planned to use in the SWBCS, such as “Live interaction both ways”, “powerpoint presentations” and “Possible small groups, depending on the size of the class”. Further, this instructor did indeed provide for live interaction, in terms of discussion among herself, guest speakers and the students. Powerpoint presentations were used often, by instructor, guest speakers and students. However, small groups were not formed. Reasons for this include, several of the students already knew each other and tended to group themselves, the class was fairly small and also no group work was assigned.

A main focus of this inquiry was what instructional strategies have the potential to promote learning-centered dialogue in the synchronous environment online. Therefore, observations of the synchronous online environment were made to see what strategies could be detected. The observations were guided by the SWBCS observation tool, first created and used by Schullo (2005). A scaled-down version was used in this study, specifically focusing on instructional strategies that promote dialogue.

#### *Observations – Case 1*

*Predictions.* Given that instructor 1 had not used a SWBCS before it was predicted that only some of the strategies that were revealed to promote dialogue in the literature review, pilot study and delphi results would be used. It was also predicted that she would use strategies she mentioned in the instructor interview which were; (a) live interaction both ways (b) powerpoint presentations and (c) possible small groups, depending on the size of the class.

*Session overview.* Generally, the format of each synchronous session was the same. First the instructor or guest speaker would make a presentation. Then two students would present. Each of these presentations would include a powerpoint, time for questions and discussion, and revolve around a similar topic for the evening, such as, “Financing Children’s Mental Health”. Although the sessions had an overall consistent format, observations revealed that this instructor frequently used a wide variety of strategies beyond what was predicted by the researcher.

### *Instructional Strategies - Dialogue*

A list of the strategies used by the instructor and an example of how each was used within at least one of the sessions and the SWBCS tool used to implement the strategies are provided in Table 20. Even a cursory look at Table 20 reveals that this instructor used a wide variety of instructional strategies that promote learning centered synchronous dialogue online. The examples show how she used the strategies. The SWBCS tools she used to implement the strategies are also shown.



Table 20. Dialogue related strategies used by the instructor, an example and SWBCS tool used to implement

Strategy	Example	SWBCS Tool
Establishes social presence: use of casual language, humor, rapport-building and/or greetings	used her first name poked fun at herself about having to learning the technology along with the students, often referred to and shared personal experiences, greeted students at beginning of each class	Duplex audio
Captures student attention	Addressed each student individually as they arrived into the session.	Duplex audio Direct messaging
Provides opportunities for and mediates discussions	Student were instructed, respond either by taking the microphone, i.e. press “talk” or use the direct messaging area when posed with a question, used wait time, would ask questions like, “Susie, what did you think about what Bryan just said?” or “Can anyone offer an example of what I just talked about?”	Duplex audio Direct messaging
Provides prompt/corrective feedback	Feedback would include explanations like, “That is correct, kids need to attend school regularly, also, remember that these are kids that need multiple services, there are other factors that play into getting kids to attend school regularly, like stable living arrangements. Students, what other factors contribute to regular school attendance?”	Duplex audio
Displays instructional immediacy	Questions and concerns were handled right away.	Duplex audio
Communicates high expectations	Frequently referred to grading requirements and adherence to due dates while addressing concerns	Duplex audio
Emphasized time on task	Focused the discussion and lecture by displaying slides showing the current course topic	Duplex audio
Emphasized time on task	Frequently asked for student input from those currently working in the field, relating what that student said to the broader topic of that evening’s class so as to connect the learners to each other, to the content and to professionals in the field. Scheduled three guest speakers to communicate a variety of perspectives.	Whiteboard Duplex audio
Reinforces ideas, concepts & knowledge	Students were instructed to “raise their hand” or display a confused face emoticon, instructor acknowledged student comments throughout the class session	Duplex audio Emoticons
Student-led presentations	At least two students led presentations each session	Duplex audio Whiteboard File sharing

### *Instructional Strategies - Structure*

Besides the instructional strategies this instructor used to promote learning-centered, synchronous dialogue online, she basically used all of the structure related instructional strategies found on the observation instrument as well. These structural strategies included: (a) provision of materials prior to class, (b) starting on time, (c) explanation of the objectives for the session, (d) organization and explanation of upcoming assignments, (e) provision of an agenda for the session, (f) provision of clear directions for how to communicate using the technology (raise hand, talk directly or text message) and (g) preview of content. The SWBCS tools she used to implement the structural strategies were duplex audio and the whiteboard.

### *Post-synchronous Survey*

*Practice sessions & set-up.* Eleven (100%) of the students responded to the post-synchronous survey. Eight (73%) of the students reported that they participated in a SWBCS practice session, 3 (27%) did not. Of the eight students that reported they participated in a practice session, 4 (50%) reported that it, “prepared them well” for the real-live session and 4 (50%) reported that, “I was already prepared”. Ten (91%) of the students reported that setting up the technology required for using the synchronous software for Elluminate Live! was, “not difficult”. One (9%) student reported that setting up the technology was, “somewhat difficult”. When asked, “How easy was the Elluminate Live! interface to use?”, 10 (91%) of the students reported that it was, “easy” and one (9%) student reported it was, “somewhat easy.”

### *Student Descriptions of Dialogue*

Student descriptions of their instructor's use of the SWBCS served to shed a bit of light on what instructional strategies instructors use to promote learning-centered synchronous dialogue online. The researcher did not expect students to have the expertise to formally name or gauge the adequacy with which their instructor implemented the strategy. Table 21 displays the student descriptions, provided by ten (91%) of them. Students were asked to describe all the instructional strategies they recognized so some students reported more than one strategy. The students described the instructor's strategies in their own words. The researcher then categorized the student descriptions into four areas: (a) lecture, (b) discussion, (c) student presentations and (d) time to ask questions.

Table 21. Student descriptions of how their instructor used Elluminate Live! to promote dialogue

Description	Students who provided this description	
	#	%
Lecture	10	100
Discussion, interactive discussion	5	50
Student presentations	7	70
Time to ask questions	1	10

Ten (91%) of the students reported their instructor's use of Elluminate Live! enhanced the dialogue component of the course, one (9%) reported that the use of Elluminate Live! did not enhance the dialogue component of the course. Students were asked to describe how their instructor's use of the SWBCS enhanced the dialogue component of the course, Table 22 displays their descriptions.

Table 22. Student descriptions of how their instructor's use of Elluminate Live! enhanced the dialogue component of the course

Response #	Description
1	more comfortable to talk and give feedback from home
2	While students didn't communicate through speech much (although they don't often in class either), the text chat area allowed people to post comments without interrupting the session.
3	dialogue enhanced by comfort of environment
4	because people were generally more comfortable speaking, not worrying about face-to-face interactions
5	It required me to think a bit differently and organize my thoughts made it more convenient - wish more classes were Elluminate Live! based
6	the instructor turned off her mic so other could talk, she also allowed students to raise their if they had a question
7	opened up a new avenue for communication and learning

One of the main comments that student's made about how the Elluminate Live! sessions enhanced dialogue in the course was the comfort of the environment. This comment was documented several times in each observation of the Elluminate Live! sessions. Students referred to comfort in several ways: (a) physically, e.g. I am wearing my favorite pajamas! (b) affectively, e.g. I do not have to worry about putting on make-up and (c) cognitively, e.g., I can sit and think about my answers without anyone staring at me. Another reason that students provided for why the Elluminate Live! sessions enhanced dialogue in their course was that it provided an alternate communication tool. An alternate communication tool could be interpreted to mean: a tool beyond asynchronous means,

e.g. email, (b) a tool that was new to them or (c) a tool that provided a new perspective on thinking and learning.

### *Dialogue Enhancement*

*Technical issues & dialogue.* None of the students reported having major technical problems. Five (45%) of the students reported no technical problems, 6 (55%) of the students reporting having a “minor problem” with connecting to the session. This minor problem hindered the dialogue of 3 (50%) of these six students somewhat, one (25%) student reported that the technical problem hindered their ability to dialogue, “a lot” and one (25%) student reported that the technical problem hindered their ability to dialogue so much that they gave up trying to dialogue. Neither the researcher nor the instructor were aware of any student that absolutely could not connect and therefore dialogue. It may have been that that student got disconnected during one session and did not attempt to re-connect.

*Group size & dialogue.* In each of the four sessions there were 10-13 people, comprised of students, instructor and a guest speaker. All of the students reported that, “the number of people in my Elluminate Live! session did not enhance or diminish my ability to dialogue with my instructor”. In this case, group size did not make a difference to the students in terms of dialogue.

*Amount & quality of dialogue.* When students were asked if the amount of dialogue they had with their instructor was enhanced by the Elluminate Live! sessions, 4 (36%) reported, “no”, 4 (36%) reported, “somewhat” and 3 (28%) reported, “yes”. The results of whether the Elluminate Live! sessions enhanced the amount of dialogue students perceived is variable in this case. The amount of dialogue any one student considered an enhancement offered by the SWBCS is in and of itself, variable.

In this case, 8 (72%) of the students reported that the quality of dialogue they had with their instructor was enhanced by Elluminate Live! sessions. As discussed previously, Table 22 provides some of the reasons a majority of the students perceive an enhancement to the quality of dialogue because of the SWBCS.

#### *Student Follow-up Interview*

Following the last Elluminate Live! session, students who responded to the post-Elluminate Live! survey were asked to leave their contact information if they would be willing to participate in a follow-up interview. The follow-up interview protocol was general and open-ended. The data generated from the interviews was reduced to include only comments related to the dialogue component of the SWBCS experience and are presented in Table 23. Students provided comments about what they liked about the SWBCS. In a comparative sense, one student preferred the SWBCS enhancement to a course versus having a course completely asynchronously online. Again, a sense of increased comfort was mentioned. One student would have liked to have more Elluminate Live! sessions and one felt as though the sessions were not long enough. Additional comments were

generally positive in nature regarding the SWBCS although one student expressed that she did not want to take a course that was exclusively delivered via a SWBCS.

Table 23. Student follow-up interview responses

Interview Question	Response (in terms of dialogue)
What did you like about your experience in the Elluminate Live! virtual classroom?	1 I thought it was better than an online class with no virtual discussion.
	2 It was a more relaxed way to have a class. I also liked that the chat box gave us a way to communicate during the lecture and presentations without being disruptive to what was going on.
What didn't you like about your experience in the Elluminate Live! virtual classroom?	1 Two hours is not enough time for a graduate course discusison if we want to thoroughly discuss the readings
	2 Only that we didn't have more Elluminate Live! sessions- I would have been happy to have all of our class sessions take place using Elluminate Live!.
Your opinion as a student participant in Elluminate Live! is important to me! Please comment about anything else you would like to tell me about your Elluminate Live! experience	1 It is a great alternative to online classes with no discussion but I hope elluninate is not used exclusively for courses that i am required to take.
	2 I liked using Elluminate Live! very much and hope to be able to use it in more classes in the future. It provided more interaction with students and the professor than I've had in other on-line classes, which never have a formal on-line session for everyone to meet. I love it, I wish all classes were interactive like that!

### *Instructor Follow-up Interview*

*Perceived effectiveness.* In a brief follow-up interview, the instructor was asked which instructional strategy that she implemented in the SWBCS was most effective. In response to this inquiry she said, “Discussion via “direct messaging” (text), because students seemed to readily respond this way”. When asked which strategy she found least effective she responded by saying, “Discussion via ‘talk button’ (verbal), because I was disappointed that students did not communicate verbally, more, to the discussions. Although they actually participated more verbally in Elluminate Live! than in face-to-face class”.

*Future use.* When asked if she would use the SWBCS again, this instructor exclaimed, “I’m a believer! I’ll certainly incorporate it into the courses I teach in the future”. When asked if she would recommend the use of a SWBCS to other instructors, this instructor reported, “I already have!”

### *Summary of Case 1 Based on Research Questions*

Now that the data from case 1 has been presented, a summary will be provided here, based on the research questions that drove this inquiry.

*Research Question 1: What instructional strategies have the potential to promote learning-centered synchronous dialogue online?*

Most of the instructional strategies that promote learning-centered synchronous dialogue online developed from the literature review, pilot study and Delphi were also observed and/or reported by students and instructors in case 1. Therefore, case 1 con-



firmed what instructional strategies have the potential to promote learning-centered, synchronous dialogue online.

*Research Question 2: What instructional strategies do instructors use to promote learning-centered online synchronous dialogue?*

Based on observations, student surveys and instructor follow-up responses, case 1 revealed that many of the same instructional strategies that were developed in the literature review, pilot study and Delphi were also used by the instructor in case 1. The instructional strategies used most frequently by the instructor in case 1 to promote dialogue were: (a) discussion, (b) student led presentations and (c) guest speakers. Therefore, case 1 serves to provide evidence that these strategies are indeed used to promote dialogue

*Research Question 3: Why do instructors use these strategies to promote learning-centered online synchronous dialogue?*

This instructor stated that one of the tenets of her educational philosophy was active student engagement. She used instructional strategies that potentially promote dialogue to engage her students in dialogic events and thus carrying out the philosophy she professes. For example, she used discussion questions to pause, provide students with information to think about and in turn receive a response whether it be verbal or text.

*Research Question 4: How do instructors implement these strategies given the tools available in the SWBCS?*

In this case, the instructor primarily used the duplex audio, direct messaging and whiteboard tools to implement her intended instructional strategies. The instructor in this case was comfortable with these tools. Also, she already had her course material in powerpoint presentation format, it was fairly easy for her to display her presentation slides on the whiteboard within the SWBCS as comfortably as she would in a face-to-face classroom with a computer and video projector. Also, her traditional classroom style was a mixture of lecture and discussion. Therefore, her use of the duplex audio in the SWBCS facilitated this style. She warmed up to the direct messaging quickly and began using it as a tool to facilitate discussion as well.

*Research Question 5: What is the perceived effectiveness of these strategies?*

Overall, this instructor perceived that strategies she used to promote learning-centered, synchronous dialogue online in the SWBCS were effective.

## Case 2

### Sample

*The course.* This study took place over one academic semester. The setting was a large, state university located in the southwest. The course under study was a graduate course offered through the College of Education. This course was offered in a blended format. Blackboard was the asynchronous learning management system used to deliver the content. There were two face-to-face meetings and two virtual classroom session in the SWBCS, Elluminate Live! The target population for this course is, “students in the Educational Leadership Masters Program” as reported by the instructor. Table 24 provides a brief description of the course in case 2. The students in this course are a cohort. They start and end their program cycle together. Undoubtedly, these students know one another from previous courses. They are all teachers in the same county and therefore have professional bonds as well. Although the researcher did not capture data related to how well students knew one another, these students had spent time together prior to this course.

Table 24. Overview of case 2 – the course sample

Case	# enrollees	Description
2	22	This survey course provides information and skills necessary for administrators and teachers to effectively use the computer and application software to manage information. Students use programs such as word processors, database managers, and spreadsheets to facilitate management tasks at the school and classroom level. In addition, general computer education topics related to computer literacy are included.

## *Study Logistics – Case 2*

*Practice sessions.* The researcher is not aware of any practice sessions that occurred in relationship to this case.

*Technical issues.* When an instructor requests an Elluminate Live! session and it has subsequently been scheduled by Elluminate Live! administrators, an email is sent to the instructor (or person that requested the session). This email contains two sets of instructions, one for instructors and their moderators and one for participants (students). As part of the moderator message, moderators get a password, generally their first and last name, that provides them with “privileges” upon login to Elluminate Live!. These privileges include such capabilities as upload of documents, url pushes, group formation, whiteboard manipulation and the fully functional use of other instructional features such as polling. Participants (students) get a generic password that restricts their privileges so that the instructor/moderator has control of the classroom.

In this case, the instructor sent the moderator message to everyone. This resulted in a variety of actions on the part of students. Some students were confused by the message, for a number of reasons. Some did not understand what a moderator was, some did not understand why they were given the role of moderator and some did not understand why their login would be their instructor’s name. At this point, some students remained confused and did not act. Some students became frantic, calling and emailing the instructor and other students. Still other students tried to login with the moderator user name and password in the email message they received but only one person can be logged in under

that identification. This caused the students that tried to login this way to be given an error message and they were not connected to the session. To compound the problem, the instructor logged in as a student. Because the instructor was logged in as a student, there was nothing she could do about removing the privileges of those students who logged in as moderators. Eventually, the instructor sent out an email via Blackboard telling the students the correct participant user name and password. Meanwhile, one of the guest speakers had logged in and promoted the instructor to moderator. Obviously, these issues delayed the start of the class and added a certain level of systemic anxiety to the session.

### *The Students – Case 2*

*Pre-synchronous survey.* Of the 22 students enrolled in this course, 19 (86%) responded to the pre-synchronous student survey. Eighteen (95%) of the respondents were graduate students and 1 (5%) was non-degree seeking. All of the students (100%) reported that their native language was English. All of the students (100%) reported that they had taken a distance education course before, 14 (74%) of whom reported having taken two or more distance education courses. Well over half (63%) of the students were aware that the course involved a synchronous online component. Twelve (63%) of the students reported that the instructions for using the SWBCS were “somewhat clear” and 6 (32%) of the students reported that the instructions were, “not clear”, 1 (5%) respondent skipped that question. A majority of the students (74%) reported that they expected to dialogue with their instructor in some way (email, chat, file exchange, discussion, phone call, meeting in person or share resources) once per week, 3 (16%) of the students report-

ed that they expected to dialogue with their instructor 2-4 times per week and 2 (11%) of the students reported that they did not expect to dialogue with their instructor at all. Five (26%) of the students did not expect to dialogue with other students at all, 5 (26%) expected to dialogue once per week and 7 (37%) expected to dialogue with other students 2-4 times a week while 2 (11%) of the students expected to dialogue with other students daily. Fifteen (79%) of the students expected to hear back from their instructor within 24 hours upon contacting her for help of any kind, while 4 (21%) expected to hear back from their instructor within 48 hours. Fifteen (79%) of the students reported that they expected “a lot” of guidance from their instructor throughout the semester and 4 (21%) expected, “some” instructor guidance. Ten (53%) of the students considered themselves “somewhat autonomous “ and 9 (47%) “very autonomous”.

*The Instructor - Via the Instructor Interview*

*Education/teaching background.* In this case, the instructor started her career as a special education teacher in a k-12 setting. She had taken a sabbatical to explore graduate school options and ended up pursuing a Ph.D. in Instructional Technology. She was currently teaching as an Adjunct Professor. Prior to participating in this study she had taught online before for a couple of years, using the LMS, Blackboard. This instructor had used a SWBCS extensively, before.

*Educational philosophy/style.* This instructor described her teaching philosophy in two words, “student empowerment”. She went on to elaborate, “The key to learning in constructivist learning environments is the control and empowerment of the student”, “All actions of the teacher should support this”, “the teacher supports or scaffolds student learning by providing personalized guidance, feedback, and just-in-time support”, “The integration of technology into learning environments enhances the active engagement of students... facilitates the individual’s life-long learning process... contributes to the solution of real problems that confront our society.” The description the instructor gave of her teaching style provided some of the ways in which she translates her philosophy into her style of how she approaches her students: (a) applied project-based instruction where students are given the resources to engage the content and develop technology skills, (b) provide individual feedback as requested and the opportunity to update the assignment to meet the learning objectives multiple times until they are accomplished, i.e. mastery learning, (c) reflective process where students are asked to reflect on what they learned, problems they overcame, and how they would utilize the skill or activity in the future, (d) learning community where students are provided with issues in the field and are expected to research information on these issues and consider their personal experiences with these issues and write an initial response to share with the class in a mode that stimulates consideration of the various view points on the topic and conversation.

### *Anticipated Instructional Strategies*

When instructor 2 was asked how she currently interacted with her students, she responded by saying, “Mostly through the Message option of Blackboard, but also through e-mail, BB announcements, skype, Elluminate Live!, BB discussion board, BB grade book, and cell phone. When asked how she planned to interact with her students using Elluminate Live! she stated, “demonstrate technology skills and answer questions”. In response to, “What teaching strategies do you anticipate using in your upcoming Elluminate Live! sessions?” this instructor responded by saying, “Guest lecture with PPT on whiteboard, document sharing, pushed URL, Q & A with audio conferencing and CHAT, and small group activity using break out room. Regular Office hours - Document sharing, PPT with whiteboard, pushed URL; audio conferencing and CHAT.”

### *Observations - Case 2*

*Predictions.* This instructor had used a SWBCS extensively, before. Therefore, it was predicted that she could implement many of the strategies that were revealed to promote dialogue in the literature review, pilot study, Delphi and also her instructor interview.

The synchronous sessions that this instructor had were observed to see what instructional strategies this instructor did indeed use with the main focus on what instructional strategies have the potential to promote learning-centered dialogue in the synchronous environment online.



*Instructional Strategies - Dialogue*

Strategies, examples, and tools are provided in Table 25.

Table 25. Dialogue related strategies used by the instructor, an example and SWBCS tool

Strategy	Example	SWBCS Tool
Establishes social presence by use of casual language, use of greetings when addressing students	Uses her first name, welcomed students to class	Duplex Audio
Provides opportunities for discussion	Virtually every topic had a discussion component	Duplex Audio Direct Messaging Hand-raising
Provides prompt/corrective feedback	Provides individualized feedback	Duplex Audio
Assigns Group work	Students were put in groups to research a given topic	Breakout Rooms
Adapts content	Projects are based on the student's real-life professional environment	Duplex Audio
Communicates high expectations	Models technology use	
Respects diverse talents and ways of learning	Incorporates student's professional experiences into projects	Duplex Audio, Whiteboard, demos all tools
Reinforces ideas, concepts & knowledge	Provides a variety of contact methods	Duplex Audio, Whiteboard
Encourages contact between herself as instructor and student or student-student	Engages learners with real-life scenarios	Duplex Audio, direct messaging
Encourages active learning	Had materials ready before class, explained goals or objectives for the session, previews lecture/discussion content	Duplex Audio, direct messaging, whiteboard
Provides class structure	Talk, virtual tour, break-out room	Duplex Audio, Whiteboard, demos all tools
Used a variety of tools in the SWBCS	Talk, virtual tour, break-out room	Duplex Audio, direct messaging, whiteboard
Keeps office hours in Elluminate Live!		As requested

### *Instructional Strategies - Structure*

Besides the instructional strategies this instructor used to promote learning-centered, synchronous dialogue online, she basically used all of the structure related instructional strategies found on the observation instrument as well. These structural strategies included, provision of materials prior to class, prompt start time, presentation of objectives for the session, assignment and agenda overview and directions for how to communicate using the technology (raise hand, talk directly or text message). The SWBCS tools she used to implement the structural strategies were duplex audio and the whiteboard.

### *Post-synchronous Survey*

*Practice sessions & set-up.* The researcher is not aware of any designated practice sessions for this course. Thirteen students responded to the post-synchronous survey. Seven (54%) of the students reported that setting up the technology required for using the synchronous software for Elluminate Live! was, “not difficult”, 5 (38%) of the students reported that setting up the technology was, “somewhat difficult” and 1 (8%) student responded with, “not applicable”. When asked, “How easy was the Elluminate Live! interface to use?”, 4 (31%) of the students reported that it was, “easy” 7 (54%) of the students reported it was, “somewhat easy” and 2 (15%) of the students reported it was, “not easy”.

### *Student Descriptions of Dialogue*

Students were asked to describe, in their own words, their instructor’s use of the SWBCS to promote learning-centered synchronous dialogue online. It was not expected that students judge how well the strategy was used. Students were simply asked to de-

scribe all the instructor strategies that they recognized so some students reported more than one strategy. Student descriptions were then categorized into five areas: (a) lecture, (b) discussion, (c) group work, (d) library skills and (e) guest speakers. Table 26 displays the student descriptions of instructor strategies.

Table 26. Student descriptions of their instructor’s use of Elluminate Live! to promote dialogue

Description	# Students who provided this description
Lecture	4
Discussion	4
Group work	3
Library skills	4
Guest speakers	1

Five (38%) of the students reported their instructor’s use of Elluminate Live! enhanced the dialogue component of the course, 6 (46%) reported that the use of Elluminate Live! did not enhance the dialogue component of the course and 2 (16%) reported that the use of Elluminate Live! enhanced the dialogue component of the course somewhat. Students were asked to describe how their instructor’s use of Elluminate Live! enhanced the dialogue component of the course. Two students commented on dialogue, one in terms of with other students and one in regards to their instructor. Another student mentioned that practicing with the technology was beneficial. One student brought up that Elluminate Live! allowed for clarification of skills. Table 27 displays their comments.

Table 27. Student descriptions of how their instructor’s use of Elluminate Live! enhanced the dialogue component of the course

Response #	Description
1	I believe that practicing at anything, one will become more comfortable at completing that task or performing a skill. This reality also includes the use of technology.
2	It was nice to hear my classmates talk on line, and see the interaction of them on the white board.
3	Many of the students in this class had difficulty finding peer reviewed journal articles on the USF virtual library. I think this session cleared up a lot of those questions.
4	Dialogue was enhanced between instructor and students through instant chatting and the microphone. Students could easily ask questions and obtain feedback.

*Dialogue Enhancement*

*Technical issues & dialogue.* Due to the fact that log-in and password issues were certainly present in the first session of this case, student reports of technical problems are displayed in Table 28 to get an idea of the extent of these issues. It is clear that connecting to the session was a major problem for a majority (67%) of the students that reported technical problems at all. A few major problems were also reported with the break-out rooms and virtual tour features. These are relatively sophisticated tools. Given that this was the first session, the fact that only a few students had major problems is hopeful.

Table 28. Technical problems with SWBCS tools reported by students

Tool	No Problem	Minor Problem	Major Problem	Total Respondents
Connecting to the session	1	3	8	12
Text chat area	9	2	1	12
Two way audio	6	4	1	11
Hand raising	11	1	0	12
Yes/no (green mark/red x	7	4	0	11
Emoticons (smiley/confused faces)	7	4	0	11
Whiteboard	8	3	1	12
Breakout rooms	5	4	3	12
Virtual Tours	7	2	2	11

*Group size & dialogue.* In each of the sessions there were 20-25 people, comprised mainly of students, an instructor and possibly a librarian. A majority (83%) of the students reported that, “the number of people in my Elluminate Live! session did not enhance or diminish my ability to dialogue with my instructor”. However, 2 (17%) of the students reported that their ability to dialogue with their instructor would be enhanced if the number of students in the session were less. The ideal group size for a synchronous session has not been established. Based on cases 1 and 2, in a comparative sense, 100% of the students in case 1 which had a synchronous session group size of 10-13 reported that their group size did not enhance or diminish their ability to dialogue with the instructor. However, in case 2, where the group size was 20-25, there is evidence that a few students would have preferred less than 20-25 in terms of enhancing their ability to dialogue with their instructor.

*Amount & quality of dialogue.* When students were asked if the amount of dialogue they had with their instructor was enhanced by the Elluminate Live! sessions, 3 (25%) reported, “yes”, 5 (42%) reported, “somewhat” and 4 (33%) reported, “no”. Six (50%) of the students reported that the quality of dialogue they had with their instructor was enhanced at least somewhat by Elluminate Live! sessions and the other 6 (50%) reported that the quality of dialogue they had with their instructor was not enhanced by Elluminate Live! sessions. One student provided a description of how their instructor’s use of Elluminate Live! enhanced the dialogue component of the course, “I feel that she really hit the nail on the head with this activity. This is something that future courses should utilize a lot more. Technology is a reality and being as good as you can be at learning, developing and practicing using it will surely enhance the learning experience.”

#### *Student Follow-up Interview*

Students who responded to the post-Elluminate Live! survey were asked to leave their contact information if they would be willing to participate in a follow-up interview. The follow-up interview protocol was general and open-ended. Comments related to the dialogue component of the SWBCS experience are presented in Table 29. When asked about aspects of the synchronous sessions they liked, students used words and phrases such as, “connect”, “communicate” and “It was great...”. Negative comments focused on the connection issues which were a prominent theme throughout this case. Overall comments about the sessions were positive to the point that one of the student’s wanted to use it in his classroom and another felt it was worth scheduling in real-time.

Table 29. Student follow-up interview comments

Interview Question	Response (in terms of dialogue)
<p>What did you like about your experience in the Elluminate Live! virtual classroom?</p>	<ol style="list-style-type: none"> <li>1 I liked that there were multiple ways to communicate. Also the white board was very good.</li> <li>2 It made my online class feel like a real class where I could connect and ask questions.</li> <li>3 Like the ability to have a faster "conversation" with instructor and classmates. It was great having two sessions, covering sets of course materials. The timing of these helped with digesting the information.</li> </ol>
<p>What didn't you like about your experience in the Elluminate Live! virtual classroom?</p>	<ol style="list-style-type: none"> <li>1 Our class sessions were scheduled and took place. Our group tried to schedule sessions for weekly meetings and were never able to connect. Elluminate Live!.</li> <li>2 Joining the sessions was a bit awkward the first couple of times. It would have helped to have a list of instructions that included the password and the fact that we needed to open in a new window</li> </ol>
<p>Your opinion as a student participant in Elluminate Live! is important to me! Please comment about anything else you would like to tell me about your Elluminate Live! experience</p>	<ol style="list-style-type: none"> <li>1 Mostly it was a very positive experience and I would use it myself as an instructor.</li> <li>2 To me DE [distance education] meant - on my own schedule. However each session was well worth scheduling around. It should be used at all schools.</li> </ol>

### *Instructor Follow-up Interview*

*Perceived effectiveness.* A follow-up instructor interview was conducted. When asked about effectiveness of instructional strategies in the SWBCS follow-up interview, the instructor explained that she had experienced a lot of difficulties in this case and in the past with Elluminate Live!. “Every time I have participated in an Ellminate Live session (mine or someone else’s) there have been major technology difficulties. Usually these have been at the beginning of the session with getting everyone logged on. Elluminate Live! will not open within BB, which is where most students receive their information for the session. Blackboard does not easily allow the links within a message to open in a new browser, so some students never make it into the session. The system for applying for a virtual class and then getting the information to share with students, which finally works for students is not efficient. Without a producer that has access to the main system database, I would expect that some sessions never have the opportunity to meet. Ultimately, the students perceive these difficulties in two ways. The first is that technology savvy students appreciate the problem solving strategies that are occurring by the producers, instructors, and guest speakers in order to orchestrate the event. Other students leave the experience thinking that using technology for distance learning is too difficult, problematic, and unreliable that it is not worth pursuing.” The instructor reasoned that with persistent technical difficulties, instructional strategies cannot be effective, basically because they do not get implemented at all under these circumstances.



*Future use.* In terms of recommendations and/or future use this instructor stated, almost apologetically that, “I am very reluctant to make this a major aspect of any course that must teach. At the present time, I am only willing to require one synchronous activity for the next course.”

### *Summary of Case 2 Based on Research Questions*

The data from case 2 has been presented. A summary of case 2 will be provided here, based on the research questions that drove this inquiry.

*Research Question 1: What Instructional Strategies have the Potential to Promote Learning-Centered Synchronous Dialogue Online?*

Case 2 confirmed what instructional strategies have the potential to promote learning-centered, synchronous dialogue online.

*Research Question 2: What Instructional Strategies do Instructors Use to Promote Learning-centered Online Synchronous Dialogue?*

Case 2 provides evidence that the following strategies are indeed used to promote dialogue: (a) discussion, (b) group work and (c) presence of guest speakers.

*Research Question 3: Why do Instructors Use These Strategies to Promote Learning-Centered Online Synchronous Dialogue?*

This instructor reported that her teaching philosophy involved such concepts as, “personalized student feedback”, “just-in-time support”, “integration of technology into learning environments enhances the active engagement of students”. She encourages students to reflect on their learning in an applied format, form learning communities

and consider various view points throughout a topical conversation. These ideas, when implemented in the classroom, virtual or otherwise, warrant instructional strategies that promote dialogue.

*Research Question 4: How do Instructors Implement These Strategies Given the Tools Available in the SWBCS?*

It was observed that this instructor uses quite a number and variety of tools offered in the SWBCS. Mainly, she used duplex audio, direct messaging and the whiteboard to implement the instructional strategies. Additionally, she used breakout rooms to promote dialogue.

*Research Question 5: What is the Perceived Effectiveness of These Strategies?*

Overall, this instructor perceived that the SWBCS was largely ineffective due to technical difficulties. Although, this does not answer the research question directly, it preemptively makes instructional strategies ineffective as they cannot be implemented when the SWBCS environment is not technologically accessible.

### Case 3

#### Sample

*The course.* This study took place over one academic semester. The setting was a large, state university located in the southeast. The course under study was an undergraduate course offered through the psychology department. The course was offered in a blended format. Content was delivered via the learning management system, Blackboard. Students met face-to-face for six of the class meetings. During the classroom meetings, the students either met in a classroom or in “waves” in the library. The waves consisted of 3-4 students who were scheduled to meet in the library for one hour of the three-hour class session. Every hour, a new group of 3-4 went to the library and the other 3-4 returned. Students also met four times in the virtual, SWBCS classroom, Elluminate Live! A description of the course is offered in Table 30.

Table 30. Overview of case 3 – the course sample

Case	# Students enrolled	Description
3	9	This course is Behavioral Healthcare Issues for Children to address issues involving children from the pre-kindergarten level through adolescence, and their families. This beginning course in the field of children’s behavioral healthcare emphasizes practical knowledge and learning experiences which focus on the delivery of behavioral healthcare services.

The target population for this course is, “Undergraduate students with a Minor in Behavioral Healthcare” as reported by the instructor. This program consists of a small group of students, about fifteen, that are all seeking the same minor. Two to three courses that make up this minor are offered each semester. The same fifteen or so students take one, two or all three courses per semester to complete the program. Given the fact that this is a relatively small group of students in the same program they get to know each other throughout the course of the program.

### *Study Logistics – Case 3*

*Practice sessions.* Practice sessions were offered to students before the formal instructional sessions scheduled by their instructor. Most of the students attended a practice session, how well it prepared them will be presented in the student post-synchronous survey data. A practice session involved connecting students to the Elluminate Live! interface, configuring their equipment and demonstrating the Elluminate Live! tools. A practice session usually took 30 minutes if there were not any major connection issues. The practice session filtered out problems prior to the actual session so the instructor could maximize instructional time and students could be relieved of technical issues and focus on learning the content.

*Communication logistics.* Of note in terms of logistics was the fact that this instructor was not a strong communicator when it came to any sort of happenings outside of the designated class period. For example, it was not clear when meetings at the library

might take place, when office hours were held or when assignments were due. This carried over in terms of Elluminate Live! sessions as well.

Although this instructor would schedule, “Elluminate Live! Time” he would sometimes fail to show up for the session and leave students waiting in cyberspace for his arrival. When the instructor did make it to a session he would forget to press the “Talk” button at least half of the time. Sometimes students would try to alert him by sending him a direct message or raising their hands or giving him a confused face emoticon. This resulted in a significant amount of “dead air” or “down time” during which students would become restless. By the time the instructor pulled himself together he would have to regain the instructional momentum of the session time and again.

### *The Students – Case 3*

*Pre-synchronous survey.* Nine (100%) of the students in this course were undergraduates. All 9 (100%) of the students answered both the pre-synchronous survey and the post-synchronous survey. Nine (100%) of the students reported that their native language was English. All 9 (100%) of the students reported that they had taken a distance education course before, 8 (88%) of whom reported having taken two or more distance education courses. None of the students were aware that the course involved a synchronous online component although all 9 (100%) of the students reported that the instructions for using the SWBCS were at least “somewhat clear”. Eight (88%) of the students reported that they expected to dialogue with their instructor in some way (email, chat, file exchange, discussion, phone call, meetin in person or share resources) at least once per

week, with the remaining student reporting that he/she did not expect to dialogue with his/her instructor at all. One (12%) student did not expect to dialogue with other students at all, 3 (33%) expected to dialogue once per week and 5 (55%) others expected to dialogue with other students 2-4 times a week. All the students expected to hear back from their instructor within 24 hours upon contacting him for help of any kind. Four (45%) of the students reported that they expected some guidance from their instructor throughout the semester and 5 (55%) expected, “a lot” of instructor guidance. Six (67%) of the students considered themselves “somewhat autonomous” and 3 (33%) considered themselves “very autonomous”.

*The Instructor - Via the Instructor Interview*

*Education/teaching background.* In this case, the instructor began his career as a psychologist/behavioral analyst. He had been conducting research in the k-12 setting for nearly 25 years. He is an Assistant Professor, with a doctoral degree in Applied Behavioral Analysis. In his current teaching capacity he has taught for three years for the psychology department, specifically, students in the Behavioral Healthcare minor. This instructor had taught online in the blended format but not used a SWBCS before.

*Educational philosophy/style.* This instructor described his teaching philosophy as “Applied behavioral analysis”. When the researcher asked, “What exactly does that mean, can you provide an example?” the instructor responded with the seven major tenets of this philosophy, which are summarized here: (a) focus is on areas that are of social significance, looks at how behavior changes can affect the consumer, those who are close

to the consumer, and how any change will affect the interactions between the two over the long term (b) behavior itself must change as determined by objective measurements (c) believable control over the behavior that is being changed must be demonstrated in a realistic setting, i.e. in a lab, behavior may be easy to change as the researcher can start and stop the behavior or conditions at will, but in an applied setting this may not be easy or even ethical (d) applications must be able to be replicated, i.e. a clearly systematic design (e) the application must be of practical importance (social importance), not so much theoretical (f) the application must be general enough to last over time, in different environments, and spread to other behaviors not directly treated by the intervention. As an example, the instructor stated that, “I design the course to provide practical experiences to prepare students for professional behavioral healthcare careers”. The instructor described his teaching style as, “practice, practice, practice”. When asked to elaborate on this style the instructor referred to the applied behavioral analysis philosophy with such statements as, “taking action on your ideas”, “working out solutions in the field” and “displaying marketable skills”. The researcher followed up by asking, “So, when you say, ‘practice’ you mean like a professional practice – like a doctor, not so much, ‘drill & kill’?”. This statement was followed by a discussion about what, ‘drill & kill’ meant and then agreement by the instructor with the former part of the statement, i.e. ‘practice’ as in professional work versus ‘practice’ in terms of sheer repetition.

### *Anticipated Instructional Strategies*

When asked how he currently interacted with his students, this instructor responded by saying, “classroom activities and Blackboard”. When asked how he planned to interact with his students using Elluminate Live! he stated, “classroom activities and group assignments”. Thinking that the final question in the interview protocol would allow the instructor to expand on his responses to these previous questions, the researcher went ahead and asked, “What teaching strategies do you anticipate using in your upcoming Elluminate Live! sessions?” This instructor responded by saying that those strategies were still being developed. Not wanting to taint the instructor’s potential use of strategies in the Elluminate Live! environment, the researcher did not question the instructor any further.

### *Observations - Case 3*

*Predictions.* Observations of the synchronous online environment were made to see what instructional strategies this instructor did indeed use with the main focus on what instructional strategies have the potential to promote learning-centered dialogue in the synchronous environment online. Given that the instructor had not used a SWBCS before it was predicted that he may only use some of the strategies that were revealed to promote dialogue in the literature review, pilot study and delphi. Strategies he mentioned include “assigned activities” and “group work” as shown in Table 31. The fact that the instructor said that the strategies he anticipated using in the Elluminate Live! environment were still under development left the door open for many possibilities.



Table 31. Strategies instructor 3 is expected to use in the SWBCS

Case 3	Expected strategies
	Assigned activities
	Group work

*Session overview.* Initially, the instructor used Elluminate Live! to present his powerpoint slides. He tended toward a lecture format, talking about the slides he displayed for the session. Although he would spontaneously become quite passionate about a topic, suddenly calling the name of a student and asking them what they thought about the current subject. He would also periodically make a general statement like, “It sure would be nice if I had a copy of yesterday’s front page” and sure enough, one or more the students would find it online and the instructor could then allow that student moderator privileges so they could type in the url and display the website to the whole class. This is just one example; observations revealed that this instructor sporadically used a variety of strategies as shown in Table 32.

*Instructional Strategies - Dialogue*

Strategies, examples and tools are provided in Table 32.

Table 32. Strategies, examples and SWBCS tool used to implement

Strategy	Example	SWBCS Tool
Establishes social presence: Use of humor	Would mention how inept he was using this technology as he frequently forgot to press the “Talk” button.	Duplex Audio
Provides opportunities for and mediates discussions	Did this more in terms of stopping to answer questions, kind of on an, “as needed” basis	Duplex Audio
Provides prompt/corrective feedback	Again, did this in an, “as needed” sense, it wasn’t really built into the session	Duplex Audio
Communicates high expectations	Had very high expectations of the students, talked about his expectations for their research papers by referring to an extensive checklist he wanted them to use as an outline for it (the problem was he had several versions of this check list floating around – it was unclear as to which one the student should follow)	Duplex Audio
Respects diverse talents and ways of learning	Did not necessarily utilize this strategy on purpose but was always open to student suggestions, encouraging them to pursue their own interests and linking them to professionals that may have information or practical experience to share.	Duplex Audio
Reinforces ideas, concepts & knowledge	Repeated his core beliefs about general concepts the students needed to know or embrace or act on, i.e. attending grad school, marketable skills and forming professional and community partnerships	
Encourage contact between himself as instructor and student or student-student	Requested that students make appointments to meet with him to talk about their research paper and to meet with each other for peer review	Duplex Audio
Kept office hours	At least once per week and by appointment	Duplex Audio

### *Instructional Strategies - Structure*

This instructor did not use any discernable instructional strategies found on the observation instrument relating to structure.

### *Post-synchronous Survey*

*Practice sessions & set-up.* Nine (100%) of the students responded to the post-synchronous survey. Eight (89%) of the students reported that they participated in a SWBCS practice session. Of the 8 (89%) students that reported they participated in a practice session, 5 (63%) reported that it, “prepared them well” for the real-live session, 2 (25%) reported that it, “did not prepare me well” and 1 (12%) reported that, “it prepared me somewhat.” Seven (78%) of the students reported that setting up the technology required for using the synchronous software for Elluminate Live! was, “not difficult”. One (12%) student reported that setting up the technology was, “somewhat difficult”. When asked, “How easy was the Elluminate Live! interface to use?”, 6 (67%) students reported that it was, “easy” 2 (22%) students reported it was, “somewhat easy” and 1 (11%) student reported it was, “not easy”.

### *Student Descriptions of Dialogue*

Student descriptions of their instructor’s use of the SWBCS provided one perspective on what instructional strategies instructors use to promote learning-centered synchronous dialogue online. Students were not expected to evaluate how effectively the strategy was implemented or what the precise name of the strategy was. Students were asked to simply describe in their own words what strategies they recognized their instructor using.

Categories of student descriptions were, (a) lecture, (b) discussion, (c) group work and (d) questions and answers as displayed in Table 33.

Table 33. Student descriptions of how their instructor used Elluminate Live!

Description	# Students who provided this description
Lecture	6
Discussion	3
Groupwork	1
Questions & answers	1

Five (63%) of the students reported their instructor's use of Elluminate Live! enhanced the dialogue component of the course, 2 (25%) reported that the use of Elluminate Live! did not enhance the dialogue component of the course and 1 (12%) reported that the use of Elluminate Live! enhanced the dialogue component of the course somewhat. Student comments regarding how their instructor's use of Elluminate Live! enhanced the dialogue component of the course centered around interaction. Table 34 displays the full comments provided by two of the students in the course.

Table 34. Student descriptions of how their instructor’s use of Elluminate Live! enhanced the dialogue component of the course.

Response #	Description
1	he asked us all questions and interacted with everyone
2	It is really difficult to vocally interact when raising your hands are an option. I am still fond of the type what you want to say when you have the thought. there was more interaction with the instructor because we weren't necessarily put on the spot in front of our classmates

*Technical issues & dialogue.* Seven (78%) of the students reported no technical problems. One student reported having a minor problem with two way audio and one student reported having a minor problem with application sharing. Only one student reported that the minor technical problem hindered their dialogue.

*Group size & dialogue.* In each of the four sessions there were 10-12 people, comprised of students, instructor and possibly a librarian. Eight (89%) of the students reported that, “the number of people in my Elluminate Live! session did not enhance or diminish my ability to dialogue with my instructor”. In this case, group size did not have an affect on dialogue.

*Amount & quality of dialogue.* When students were asked if the amount of dialogue they had with their instructor was enhanced by the Elluminate Live! sessions, 4 (50%) reported, “yes”, 2 (25%) reported, “somewhat” and 2 (25%) reported, “no”. Six (67%) students reported that the quality of dialogue they had with their instructor was enhanced at least somewhat by Elluminate Live! sessions. One student provided a descrip-

tion of how their instructor's use of Elluminate Live! enhanced the dialogue component of the course, "often stopped to see if anyone had a question".

#### *Student Follow-up Interview*

A few students who responded to the post-Elluminate Live! survey left their contact information indicating they would be willing to participate in a follow-up interview. The follow-up interview protocol was general and open-ended. Data from student interviews was reduced to include comments relevant to the dialogue component of the SWBCS experience are presented in Table 35. When student's responded to what they liked about the Elluminate Live! sessions they used terms and phrases such as, "engaged" and "enhanced dialogue between those students who actively participated in the class". What student's reported that they didn't like about the class was having to learn the new technology and the irregularity with which the office hour sessions were held. Overall comments regarding the synchronous sessions focused on partner work, i.e. using SWBCS sessions to collaborate outside of the face-to-face class sessions.

Table 35. Student follow-up interview comments

Interview Question	Response (in terms of dialogue)
<p>What did you like about your experience in the Elluminate Live! virtual classroom?</p>	<p>1 [Instructor 3] would continually ask a specific person to respond to the question he asked, then he would open it up to the entire "room". This attempt at forcing a response, required us to remain engaged in the activities in the classroom and not "wander" from the computer.</p> <p>2 Enhanced dialogue between those students who actively participated in the class.</p>
<p>What didn't you like about your experience in the Elluminate Live! virtual classroom?</p>	<p>1 I had to learn a few things the hard way. I learned that if you use the microphone/headset too close to the speaker on the laptop - it can cause an "echo" Sometimes the connection time was long, so in order to be in class "on time" it is necessary to start the process 10 minutes or so before the class is set to begin, especially if attendance is being monitored</p> <p>2 Instructor dialogue could have been better with more practice using the program prior to the start of sessions</p> <p>If office hours would have been more stable, it is a great way to keep in touch with the instructor.</p>
<p>Your opinion as a student participant in Elluminate Live! is important to me! Please comment about anything else you would like to tell me about your Elluminate Live! experience</p>	<p>1 Offering a course where the instructor can teach and show powerpoint presentations and encourage vocal responses is a good step. My partner and I would meet online typically once per week post midterm. Allowing the time to chat about our subject matter and share our powerpoint presentations with each other gave time to meet and review our work prior to posting it for a grade. We were able to communicate and share without being together which is nice.</p> <p>2 I was able to use Elluminations with a student partner and was pleased with the interaction. To be able to sit in the comfort of your own home while collaborating with a peer in this fashion was liberating.</p>

### *Other Uses of Elluminate Live!*

After using the SWBCS for typical lecture/slide presentations the instructor began using it to hold office hours. The instructor offered office hours regularly for an hour or so and then scheduled other sessions by appointment. Office hours provided an opportunity for individual student questions as there were generally only one or two students in attendance. Due to the fact that office hours were not particularly instructional in nature, these sessions were not observed or tracked on a regular basis. This instructor also encouraged students to use it as pairs or groups on their own time. A few students did pair up and use the SWBCS to discuss their projects and provide feedback to one another about their research paper. These sessions were not the focus of this research study as they did not involve the instructor or his use of strategies.

### *Instructor Follow-up Interview*

*Perceived effectiveness.* In a brief follow-up interview, the instructor was asked about the effectiveness of the instructional strategies he implemented in the SWBCS. He stated that the whiteboard was the most effective strategy. The whiteboard is not an actual strategy so the researcher asked him what he found effective about this particular tool. The instructor stated, "I can present my class lecture notes and the students can chime in with questions". The researcher said, "Kind of like a discussion?" and the instructor responded, "Yes." When asked about what was least effective the instructor referred to the fact that he frequently forgot to press the "Talk" button. Again, the "Talk" button in and



of itself is a tool, not a strategy. The instructor went on to say that having to remember to press the “Talk” button slowed him down and this caused him to be ineffective.

*Future use.* When asked if he would use the SWBCS again, this instructor stated that he planned on incorporating it into future courses, possibly expanding its use in frequency and tool-wise.

### *Summary of Case 3 Based on Research Questions*

The data from case 3 have been presented. Based on the research questions a brief summary of case 3 follows.

*Research Question 1: What instructional strategies have the potential to promote learning-centered synchronous dialogue online?*

The instructional strategies that the instructor in case 3 put into use were considered strategies that promote learning-centered synchronous dialogue online as developed from the literature review, pilot study and Delphi. These strategies included: (a) communicating high expectations, (b) respecting diverse talents and ways of learning, (c) encouraging contact between himself as instructor and student or student-student and (d) keeping office hours in Elluminate Live!. Therefore, case 3 confirmed what instructional strategies have the potential to promote learning-centered, synchronous dialogue online.

*Research Question 2: What instructional strategies do instructors use to promote learning-centered online synchronous dialogue?*

Based mainly on observations, case 3 showed that some of the same instructional strategies that were developed in the literature review, pilot study and Delphi were also

used by the instructor in this case. Therefore, case 3 provides additional evidence that these strategies are used to promote dialogue.

*Research Question 3: Why do instructors use these strategies to promote learning-centered online synchronous dialogue?*

This instructor reported that his teaching philosophy involved such concepts as, “practice”, “application” and “practical experiences”. He attempted to require his students to demonstrate their learning in an applied format. These tenets of his teaching philosophy warrant the use of instructional strategies that promote dialogue.

*Research Question 4: How do instructors implement these strategies given the tools available in the SWBCS?*

In this case, the instructor used the duplex audio and whiteboard tools to implement instructional strategies. In addition, students utilized the direct messaging area and virtual tour feature.

*Research Question 5: What is the perceived effectiveness of these strategies?*

Overall, this instructor perceived that the strategies he used to in the SWBCS were effective.

## *Chapter Summary*

Data from several methods, (a) Delphi consensus (b) interviews with instructors (c) student surveys (d) interviews with students (e) observations and (f) reflective journal were collected and reduced iteratively throughout the duration of the data collection period. This chapter presented the data in a chronological order, as it was collected/reduced for each of three cases. Using the data from each case, the research questions were briefly addressed. Conclusions, based on the data presented herein are presented in chapter 5.

## Chapter Five

### Discussion

This chapter discusses the results presented in chapter 4. Three separate cases were the basis for examining instructional strategies that have the potential to promote learning-centered dialogue in the synchronous environment online. Each case was investigated from a variety of perspectives including, participant-observer, instructors and students. Each case was also studied through various methods including, interviews, observations and surveys. The Delphi exercise added another dimension to the investigation with an expert perspective.

This discussion proceeds by first discussing the Delphi results. The Delphi consensus results relate to research questions 1 and 2: what instructional strategies have the potential to promote learning-centered synchronous dialogue online and what instructional strategies are *used* to promote learning-centered synchronous dialogue online. Because the Delphi results answer research question 1, the rest of the analysis will focus on research questions 2-5.

Overall, the list of instructional strategies having the potential to promote learning-centered, synchronous dialogue in the online environment originally developed from the literature review and pilot study, remained a stable inventory. This was shown in

the results of the Delphi consensus and observations. This list also served as a sufficient representation of instructional strategies that are used to promote synchronous dialogue online (see Figure 6). The reasons that instructors used these strategies are provided by the instructor interviews and are elaborated on in the discussion of observation data. How instructors implement the instructional strategies having the potential to promote learning-centered synchronous dialogue online given the tools in the SWBCS is also addressed in the discussion of observation data. Finally, the perceived effectiveness of the strategies comes to light in the discussion of instructor interview and observation data.

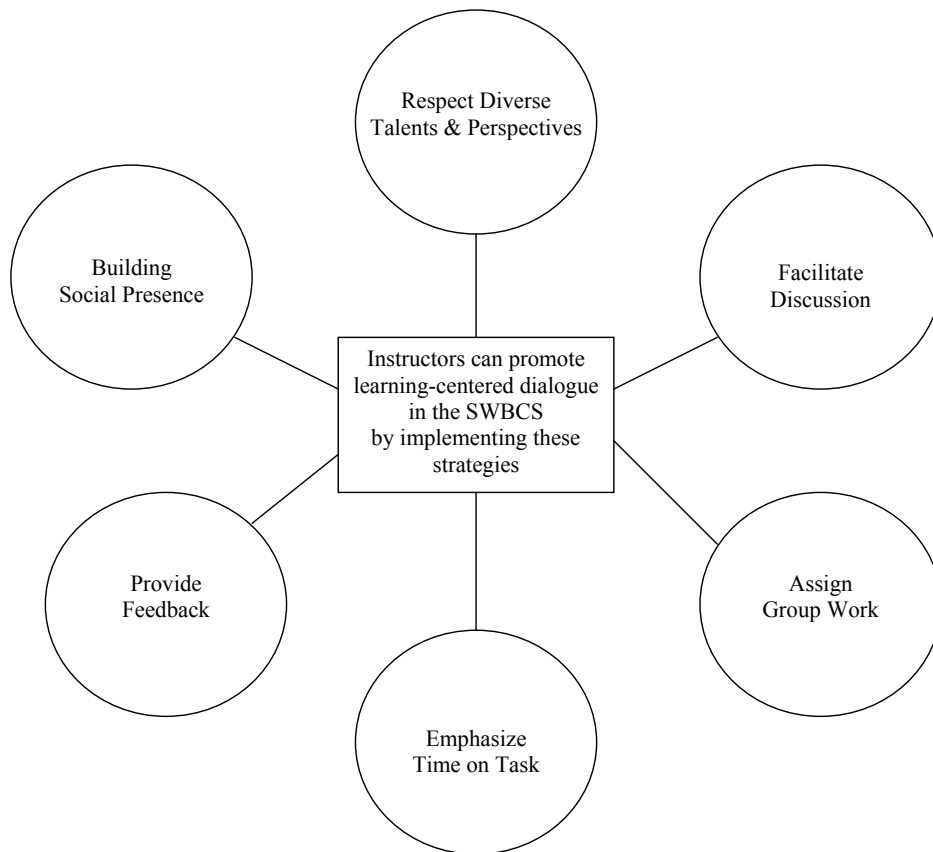


Figure 6. Representation of instructional strategies that promote synchronous dialogue in a SWBCS

The use of these strategies in turn contributes to mediating the affects of transactional distance as shown in Figure 7.

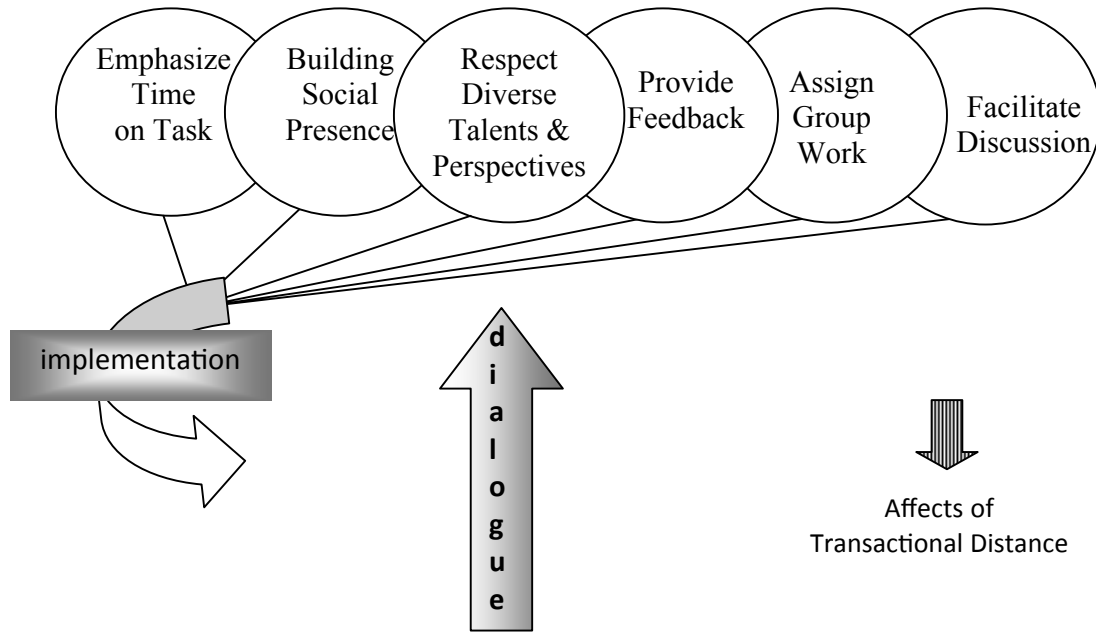


Figure 7. The use of instructional strategies that promote dialogue mediate the affects of transactional distance

## *Discussion of Findings*

### *Research Questions*

*Research Question 1: What instructional strategies have the potential to promote learning-centered synchronous dialogue online?* This question was addressed via the Delphi exercise, developing consensus from experts. Delphi experts were asked to provide information about which of the strategies (see Table 12) they felt had the potential indeed promote learning-centered, synchronous dialogue online. A majority of the experts agreed that the strategies they were presented with had the potential to promote learning-centered, synchronous dialogue online.

There are several possible reasons that a majority of the experts agreed. First, the list of instructional strategies that have the potential to promote learning-centered, synchronous dialogue online was developed from a solid research foundation and included well-established best practices. Not only were these strategies found in research on face-to-face, blended and asynchronous courses but also in the synchronous environment by Schullo (2005), Jennings (2005) and Knolle (2002). The pilot study was also in line with many of these instructional strategies offering more evidence for the fact these strategies are sound.

*Research Question 2: What instructional strategies do instructors use to promote learning-centered synchronous dialogue online?* Most experts agreed that they did in fact use the strategies presented in the Delphi study (see Table 11).

The use of instructional strategies was also addressed via observations, the results of which are displayed in Tables 20, 25, and 32. Strategies that were found in all three cases were: (a) establishment of social presence by use of casual language and humor, (b) provision of opportunities for discussion, (c) provision of feedback, (d) communication of high expectations, (e) respect for diverse talents and ways of learning and (f) reinforcement of ideas, concepts & knowledge.

*Research Question 3: Why do instructors use these strategies to promote learning-centered synchronous dialogue online?* This question is addressed via the instructor interview and participant-observer interpretations. Instructors used particular strategies for several reasons including, (a) prior teaching experience, (b) educational philosophy/style, and (c) providing an additional option for both instructor-student and student-student dialogue.

*Research Question 4: How do instructors implement these strategies given the tools available in the SWBCS?* Participant observations addressed this question. The main tools used by instructors to implement instructional strategies were: (a) duplex audio, (b) direct messaging (text chat) and (c) the whiteboard. There were several reasons instructors used these tools: (a) they were relatively simple to use by instructors and students, (b) they met the presentation needs of the instructor, i.e. whiteboard and (c) they allowed for immediate dialogue, i.e. duplex audio and direct messaging.



*Research Question 5: What is the perceived effectiveness of these strategies?*

Instructors were asked to address this question in the instructor follow-up interview.

There were varying degrees and types of perceived effectiveness among instructors. The instructor in case 1 was confident in the instructional strategies she used to teach whether in the face to face or SWBCS classroom. Therefore, she perceived them as effective. The instructor in case 2 was confident in the appropriateness of her educational philosophy and its theoretical foundations as applied to her teaching strategies online. She perceived the instructional strategies themselves effective. Her self-reported teaching style called for integration of technology into the educational experience of her students. Although she wanted to integrate technology into her course out of her philosophical beliefs, she was hesitant due to prior poor experience with the SWBCS technology itself. When technological barriers cropped up once again in her use of the SWBCS during this study she perceived the SWBCS itself entirely ineffective. Instructor 3 did not necessarily have pre-conceived notions of instructional strategy effectiveness. He focused more on the effectiveness of the SWBCS tools rather than on strategies. Basically, he found tools that he could use easily and quickly to be effective, i.e. whiteboard, whereas tools that he found difficult to use properly he deemed ineffective, i.e. duplex audio “Talk” button.

*Theoretical Implications*

Now that the research questions have been briefly addressed, their relationships to the theoretical constructs framing this study will be discussed. Chapter 2 provided the details of the theoretical framework for this study. To review, the over-arching theory is

transactional distance which has several tenets as follows: (a) transactional distance is a pedagogical phenomenon, not simply a matter of geographic distance (b) transactional distance is a continuous rather than discrete variable, i.e. a program is not distant or non-distant, more or less distant (c) transactional distance is relative, not absolute (d) there is some transactional distance in all educational events (e) distance education is generally the subset of educational events in which the separation of teacher and learner is so significant that it affects their behavior in major ways, it dictates that instructors plan, present and perform in significantly different ways than in face to face environments.

#### *Relationship to Transactional Distance & Dialogue*

What is important about this for educators and was focused on in this study is the affect that this transactional distance has on dialogue and the special instructional strategies that can be used to promote it in the synchronous online classroom and can therefore then be implemented to bridge gaps of communication or understanding caused by the geographic distance. With the SWBCS, dialogue can be addressed in different ways using different strategies, adding another mode of communication to a course.

#### *Dialogue & Teaching/Learning Environment*

Dialogue depends on the teaching/learning environment. There are some environmental factors that had an affect on dialogue in this study, including practice sessions (or lack thereof) and technical issues. Practice sessions are essential to eliminating technical problems prior to an official instructional session. Levels of communication apprehension in the online synchronous environment (Monson, Wolcott, Seiter, 1999) are negatively

correlated with prior experience. In other words, as prior experience with the SWBCS increases, anxiety toward communicating in this environment decreases. When students participate in a practice session they get a chance to (a) make sure they have all the computing equipment they need to function in the SWBCS, e.g. computer, microphone, speakers, (b) configure their computing equipment, i.e. download the appropriate plug-in and perform the audio set-up wizard, (c) test out their login-in and password, (d) experience what the computer will communicate and how long it will take as they are being connected to the session and (e) orient themselves to the interface. If problems arise with any of these steps students still have time to rectify them before the actual session. The removal of technical barriers allows students to decrease some of their anxiety, enabling cognitive power for learning to come into play. Hillman et. al. (1994) found that when sufficient time is allotted for practice, allowing students to get used to the new technology interface, students are less distracted and stressed from the interaction with the interface itself. This applies to instructors as well.

#### *Dialogue & Educational Philosophy*

Educational philosophy also determines the extent and nature of dialogue. In cases 1 and 2, the instructors indicated that their educational philosophy included such overall strategies as, active student engagement, live interaction both ways, and student empowerment to promote dialogue. The instructor in case 3 indicated that his educational philosophy was applied behavior analysis, one of the principles of which is applying so-

lutions in realistic settings. The SWBCS provides the venue for these educational philosophies to play out as it offers several various forms of 2-way communication in real time.

For instance, with a constructivist philosophy, such as the instructor in case 2 had, having students solve problems by interacting with each to reach a solution is ideal. Actually, students can carry on conversations among one another with the direct messaging tool and not disrupt instructional momentum. Granted, not all of these student-student direct messaging conversations are learning-centered but this researcher did observe many an instance where a student had a question, presented it in the direct messaging area and another student would answer it before the instructor even stopped to address the issue.

#### *Dialogue & Group Size*

Another factor to consider as a determinant of dialogue is group size. Clearly, it is probable there will be less dialogue between an instructor and an individual learner as the group size increases. In cases 1 and 3 the group size was 10-15 total, in case 2, the group size was approximately 25. A majority (94%) of the total students did not feel as though their group size either enhanced or diminished their ability to dialogue. This may be due in part to the fact that the SWBCS is equipped with hand-raising and direct messaging tools. Both of these tools allow students to indicate that they have a question or comment without directly interrupting the instructional flow no matter how large the group is.

#### *Dialogue & Amount/Quality*

A majority (70%) of the total students, reported that they felt the amount of dialogue they had was enhanced by their instructor's use of the SWBCS. This "amount"

cannot be quantified given the theoretical construct under which dialogue is being examined in this study but as long as students feel as though the amount of dialogue has been enhanced, the use of the SWBCS may be worthwhile in this regard. Similarly, a majority (67%) of students reported that they felt the quality of the dialogue they experienced was enhanced by their instructor's use of the SWBCS. Again, because the SWBCS offers several ways to communicate it adds another "layer" of potential dialogue to a course.

#### *Dialogue & Instructor-Learner Relationships*

Social presence includes such concepts as rapport building (Wolcott, 1996) and instructional immediacy (Gorham, 1988; Lobry de Bruyn, 2004). Tu and McIsaac (2002) describe it as, "...the degree of feeling, perception, and reaction of being connected" (p. 140). Tu & McIsaac (2002) and Schullo (2005) discussed the need for social presence in the distance education environment because students can feel isolated. The SWBCS provides several avenues for establishing social presence because it is a real-time means of communication with features that allow for two-way communication to occur.

When instructors incorporate specific rapport building behaviors into their repertoire, some degree of transactional distance can be overcome. The instructors in this study provide several specific examples of how the SWBCS can be used to establish social presence, enhancing dialogue. One example used by instructors in both cases 1 and 2 is the use of greetings (Conrad, 2002). As students entered the synchronous sessions, these instructors greeted them by name, using the duplex audio (talk) feature. This al-

lowed for individualized recognition of each student by the instructor. Humor is another type of social presence (Sanders, 1995; Lobry de Bruyn, 2004). The instructors in cases 1 and 3 made fun of themselves about learning the technology of the SWBCS along with the students. They may have done this more out of anxiety than out of purposeful use of a strategy to create social presence. In any case, their use of humor was a way to show students that the instructor is a real person too. Casual communication (Tu & McIsaac, 2002) is another way to develop social presence. In all three cases, the instructors referred to themselves by their first name, for example, “Good evening everyone, this is Jen speaking”. The use of emoticons in the SWBCS is recommended (Tu & McIsaac, 2005) as a casual communication mechanism. The instructor in case 2 planned to use the emoticons to gauge comprehension. The instructors in cases 1 and 3 did not necessarily plan to use the emoticons right away but gradually started to use them more and encouraged students to do so as well.

Overall, the instructor in case 2 had a calculated approach to developing social presence with the use of the SWBCS. She planned to use the SWBCS as an enhancement to her course and knew the tools that would encourage students to engage with her and come to know her as a real person. In cases 1 and 3, the development of social presence by the instructors was due to a common struggle they had with the students, learning to use the technology effectively. Most of the students seemed to accept their instructor’s admitted lack of technological skills and empathize. This created a supportive learning

environment, at the very least in terms of learning the technology together, instructors and students reciprocated their technological knowledge.

### *Dialogue & Learner-Learner Relationships*

The relationship between learners is another factor to consider when establishing the nature of dialogue. Although learner-learner dialogue was not the focus of this study, it was observed. The SWBCS provides a real-time opportunity for students that know each other or had decided to collaborate, to conduct conversations with one another in the direct messaging area. Also, students were more than happy to help one another get connected with someone to interview, peer review each other's work or offer encouragement. A few pairs of students even used the SWBCS to meet among themselves outside of class. These students commented that meeting in the SWBCS saved time because they did not have to drive to campus. Albeit, not all of the direct messaging conversations were learning-centered, many of them were. Nonetheless, when students can interact in a supportive environment, learning is most efficient (Vygotsky, 1978).

In particular the students in case 3 relied on each other to decipher the intent of their instructor's disjointed instructions. They would collectively discern what the instructor intended for them to complete, compare one another's work and decide on general questions that they could not resolve among one another and needed to be addressed by the instructor during a class meeting. As the semester progressed, students maintained the relationships they built at the beginning of the course, continuing to support one

another and collaboratively solve the puzzling instructions they received. Although the instructor may not have planned out this sort of learner-learner dialogue, nonetheless, it caused students to dialogue among themselves.

### *Dialogue & Learner-Content Relationships*

Dialogue is also determined by learner-content relationships. Again, this factor was not an integral part of this study but in each case, instructors used the SWBCS to present learners with content. Typically, the content was in the form of a presentation on the whiteboard and then the instructor would intersperse slides with lecture, delivered via the duplex audio feature of the SWBCS. The hand-raising feature, along with the direct messaging area easily facilitated questions from students. Instructors emphasized time on task by pointing out a bullet on a slide or elaborating on a particular point of interest within the content presented. Another feature of the SWBCS that enhances learner-content relationships is its recording ability. Students can access a full-featured recording of the session to review content at any time. Several students mentioned that this feature was helpful and that they did use the recordings to review or find out about something they missed. In accordance with the framework of transactional distance, this study provides evidence that special attention to specific strategies that can promote dialogue optimizes the use of a SWBCS in terms of enhancement of learning.

### *Dialogue & Structure*

Dialogue and structure go hand in hand when it comes to transactional distance. Although structure was not a central point of this study it is a critical component of trans-



actional distance, and therefore, using the instrument developed by Sandoe (2005), the structure of each course was observed in a cursory manner. Mainly, cases 1 and 2 demonstrated structure in terms of organization and availability of documents prior to class, classroom management during SWBCS sessions and general organization of materials. However, in case 3, the instructor did not demonstrate structural qualities. In fact, his disorganization of materials, for example, having several versions of the syllabus and research proposal guidelines, led to confusion among students. They reported not knowing which documents to go by and it didn't help that the instructor didn't seem to know which were the most current.

“Overall, preplanning was found to be a significant key to successful structure as well as successful use of the SWBCS” (Schullo, 2005). This was also the case in this study, structure (or lack thereof) in each of the cases can be attributed to preparation time. The instructors in cases 1 and 2 had all their content and materials for the SWBCS session laid out and available for students at least 1 week in advance of the session itself. This allowed students to preview the content, relate it to readings or other resources and prepare questions or comments for the session.

On the other hand, the instructor in case 3 was frequently scrambling to gather and disseminate materials during a SWBCS session, much less before. At least the SWBCS allowed for spontaneous file sharing in real-time so that students could obtain the materials. The lack of structure on the part of instructor 3 posed a relatively larger problem at the beginning of the semester than toward the end. At the beginning of the

semester, students were relatively more frustrated by the lack of structure compared to the middle and end of the course. There are several reasons as to why this may have been the case. First of all, the sheer amount of materials distributed at the beginning of the semester was more than the middle or end of the semester. Several versions of the syllabus, research proposal parameters and resources were distributed within the first week. It could very well be that this amount of materials was overwhelming to the students. Also, at this time, the students did not know the instructor well and were uncertain as to how approachable he might be to explain the materials and progression of the class. The lack of structure within the learning management system created a flurry of email and discussion board dialogue while students consulted with their peers, looking to each other for assistance. Although instructor 3 may not have intentionally set up the course to promote dialogue due to the lack of structure it nonetheless caused the students to consult one another for aid and thus they came to know each other in this way.

Just because the instructor in case 3 did not offer much structure in his course, does not mean that a smaller amount of structure is necessarily worse in general but more so that it may need to be balanced with more dialogue. But given that this instructor sporadically used the strategies to promote dialogue in the SWBCS, according to transactional distance a significant perceived gap in communication may have been present. It is possible that more instructional strategies aimed at promoting dialogue may have substituted for a lack of structure or that the content was suitable for minimal structure.

Structure in this study was not examined on a thorough basis but was noted for each case as it is an essential component of transactional distance. There was not documented evidence from students that structure was a particular problem or enhancement in one case over another but they were not specifically asked about this element. Perhaps further investigation would have turned up some useful information about the relationship of structure and dialogue in these cases but basically the researcher depended on the relationship between the two that has already been established by Moore and Kearsley (2005), Schullo (2005) and Sandoe (2005).

#### *Dialogue & Learner Autonomy*

Learner autonomy, the extent to which a learner can, “make their own decisions about study strategies, decide for themselves how to study, what to study, when, where and in what ways, and to what extent” (Moore, 2005), plays a role in transactional distance. When there is more transactional distance, for instance, in a course where little dialogue and structure exist, the learner has to exercise more responsibility for their own learning.

Out of the total students (46%) reported themselves as “somewhat” autonomous while (54%) considered themselves, “very” autonomous. On the other hand, a majority (56%) of the students also expected “a lot” of instructor guidance. In general, there was a reasonable balance of learner autonomy and instructor guidance.

In case 1 there seemed to be an equal mix of instructor guidance and learner autonomy. This was evidenced by the fact that the instructor believed in both adult learning

theory, “I follow the constructs of andragogy, a belief system that adult learners can and do learn from active engagement with the topics in the curriculum, and from one another” as well as her own responsibilities as an instructor. This balance matched well with the student’s self-report of the guidance they expected, (64%) needing, “some” instructor guidance and self-reported autonomy with 3 (27%) students reporting that they were “somewhat autonomous” and 8 (73%) reporting they were very autonomous.

In case 2, a majority (79%) of the students reported that they needed, “a lot” of instructor guidance. Although 10 (53%) of the students reported they were “very autonomous” and 9 (47%) reported they were “somewhat autonomous”. The instructor in this case offered guidance primarily in terms of structure. The instructor made herself available by telephone, email and synchronous venues 24/7 without restriction on when students could contact her. Considering the level of structure and dialogue opportunities she offered, average student autonomy was adequate at the very least.

In case 3, 5 (56%) of the students reported needing “a lot” of instructor guidance, while 4 (44%) needed some instructor guidance. A majority (60%) of the students reported themselves as at least “somewhat autonomous”. Again, although a majority of the students reported they needed a lot of guidance they also reported being at least somewhat independent, balancing the two aspects of this factor.

Learner autonomy, in this study, was only investigated in terms of student self-report and cursory observation. Perhaps a more intensive study would reveal more of

the nuances of learner autonomy and how it relates to or affects dialogue, structure and ultimately transactional distance.

*Dialogue – Beyond the Face-to-Face Classroom*

What does the SWBCS offer that enhances the learning-centered promotion of dialogue beyond what is available in a face-to-face classroom? Several examples of how dialogue can be enhanced via the SWBCS are provided in Figure 8. It is important to keep in mind that break out rooms and discussions should be learning-centered.

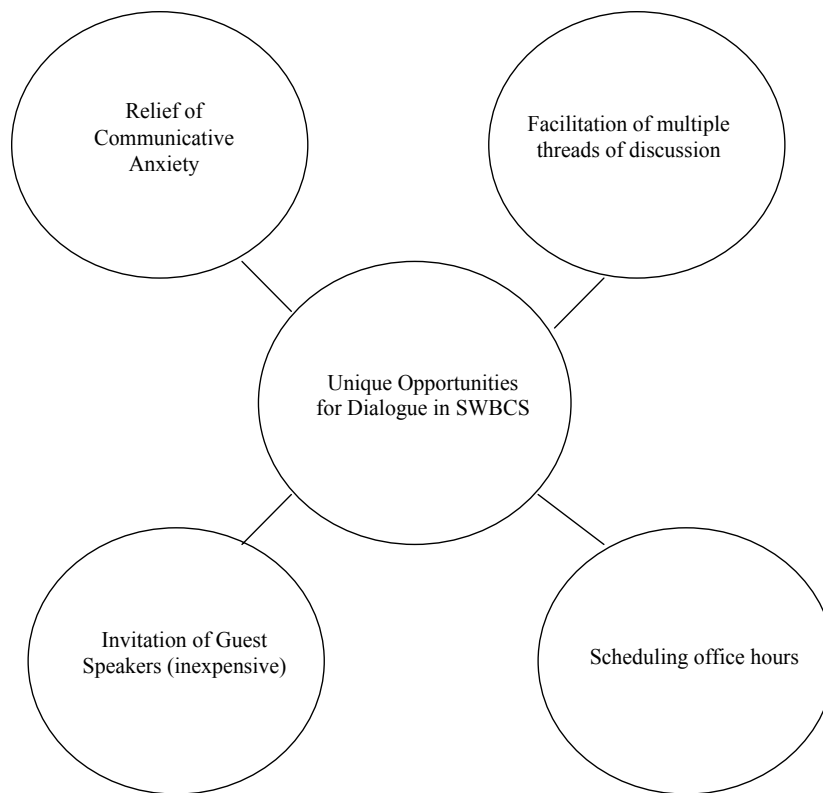


Figure 8. Unique opportunities for dialogue in SWBCS

*Example 1 – Relief of Communication Apprehension (anxiety)*

In case 1, during the first round of student-led presentations, the first student that attempted to load her powerpoint presentation had produced it in MS Office 2007. As described in chapter 4, MS Office 2007 was not compatible with the whiteboard in Elluminate Live! 7.0. The student was undeterred. She was able to continue her presentation because at least she could see the slides on her computer. Within about 5 minutes, the slides were converted to jpeg's and uploaded that way, which worked fine and restored viewing for all participants. At the end of the session, she was congratulated by the instructor for carrying-on despite the technical difficulties. The student presenter explained that had she been in the regular face-to-face classroom and there were technical problems with viewing her presentation, she would have “freaked out”, not being able to see them herself. She stated she would have become anxious, sweaty and may have not been able to proceed. Due to the fact that she was able to continue to see the slides on her computer and the fact that none of the other participants actually saw her getting nervous she was able to keep going. Also, in the interim, when the slides were not uploading correctly, the student presenter was able to push the presentation to all participants with the file-sharing feature. Some participants could open the PowerPoint on their own computers and view it that way. Relative to the face to face classroom, in which an equipment failure may postpone a presentation to the next time the class met (and thus that instructional time is irreplaceable), the SWBCS has an alternative means of viewing the slides, e.g. file sharing.

This feature maintains the amount of instructional dialogue and quality (keeping the time learning-centered) relative to the face-to-face classroom scenario. This is not to say that if students in a traditional classroom had laptops and internet access a similar solution could not have been implemented, it could have been if this equipment were available. More to the point is the fact that the student could recover from this unanticipated issue because she felt more comfortable in the SWBCS environment than standing in front of her peers in a traditional classroom.

*Example 2 – Guest Speakers*

In case 1, the instructor typically invited several professionals currently working in the field as guest speakers to her class. She regarded guest speakers as valuable to the learning experience because they could provide current and practical instruction as well as answer student questions with the most up to date happenings in the field. The SWBCS provided opportunities for guest speakers beyond what was practical in the face-to-face classroom. The SWBCS offers a cost-effective option (eliminates travel expenses) for communicating with a guest speaker that is located out of town. The SWBCS actually allows for more scheduling flexibility as well. For example, if a class normally meets on Tuesday nights and a speaker has prior engagements on Tuesday nights, the opportunity to dialogue with that speaker may be lost. However, it may be possible to schedule a speaker at another time through the SWBCS without requiring students to come to campus for an additional meeting that week.

Also, class sessions can be recorded without the need for any extra equipment and viewed by anyone with access to a computer with internet browser. While a face-to-face class can be recorded, additional equipment is needed. The equipment has to be set-up in advance of class and typically an extra person must be available to monitor video recording and change out tapes if needed. Finally, the video must be captured, possibly edited and uploaded to the LMS, this process can take several hours. Whereas, in the SWBCS the instructor simply clicks the record button on at the beginning of class and provides the link to the recording to students after class.

*Example 3 – Facilitating Multiple Threads of Discussion*

One of the experts in the Delphi study brought up an additional instructional strategy that promotes learning-centered synchronous dialogue online. The strategy he described was facilitating multiple threads of discussion simultaneously, i.e. mediating student conversations in the SWBCS. This strategy is supported by Holmberg's (1981) philosophy on what distance education should be. Citing teacher-learner dialogue as the fundamental characteristic of distance education, Holmberg suggested that distance teaching should be a conversation, what he termed a "guided didactic conversation...aimed at learning and that the presence of the typical traits of a conversation facilitates learning." (Holmberg, 1986, p. 55 in Moore and Kearsley, 2005).

In this study, several conversations among students occurred simultaneously in the direct messaging area. At first, the instructors in case 1 and 3 struggled to mediate these conversations. Initially, they were oblivious to the direct messaging area. Within the first



hour of the session instructors in both cases 1 and 3 noticed there were conversations going on in the direct messaging area. At first, they would abruptly stop their lesson when a question popped up in the direct messaging box. This interference with their instructional momentum does not resemble a guided didactic conversation. However, gradually, these instructors were able to mediate these conversations, holding a question for a logical stopping point in the lesson, incorporating the question into the current content or facilitating a more elaborate discussion of the topic in question.

What is unique about facilitating multiple conversations in the SWBCS is the fact that some of the discussion is audio, some is text based. In both cases, the conversations are recorded for later review. In terms of the text chat conversations, immediate review of comments is available, as all the text has been typed out. This allows the instructor to quickly scan textual conversations, maintaining authority in use, instructional immediacy and ultimately guide learning-centered conversations. That said, this strategy is not a simple one to implement. An instructor that has considerable experience in the SWBCS can pull this off seamlessly, however, instructors have to avoid stopping the lesson suddenly to answer a question immediately after it is posed to maintain a “guided didactic conversation”.

#### *Example 4 – Keeping Office Hours in the SWBCS*

Another expert stated that keeping office hours in the SWBCS would promote learning-centered synchronous dialogue online. Interestingly, the instructor in case 3 be-

gan keeping office hours in the SWBCS of his own accord. Instructor 3 kept both regular office hours, once a week and also offered to make appointments with students to meet in the SWBCS. Instructor 2 held office hours in the SWBCS on an appointment only basis. The SWBCS offers a unique opportunity for real-time dialogue outside of a traditional face-to-face class or as an enhancement to an asynchronous or blended course.

#### *Relationship to Transactional Distance*

This study has supports the work of other researchers (Moore & Kearsley, 2005; Schullo, 2005; Jennings, 2005; Knolle, 2002) by suggesting that there are instructional strategies that can be implemented to promote learning-centered dialogue using the tools in the SWBCS. The use of such strategies addresses the issue of transactional distance that can come up when the psychological or physical separation of learners and instructors becomes so significant that special strategies are necessary to bridge the gap. These strategies include such approaches as instructional immediacy/feedback, providing opportunities for discussion, reinforcement and respecting diverse talents and perspectives, made possible through the use of the SWBCS. The SWBCS provides opportunities for these strategies to be implemented in more than one way and with a quality at least as good as or better than a face to face, blended or asynchronous course as reported by students participating in this study.

#### *Relationship to Prior Studies/Pedagogical Foundations*

Many of the instructional strategies having the potential to promote dialogue discussed in previous parts of this study were found to exist in the cases studied here. These

strategies have been shown by other researchers to promote dialogue contributing to the pedagogical foundation for this study. It should not come as a surprise that the strategies found to promote dialogue in the SWBCS run in parallel to those previously determined to promote dialogue in traditional classroom instruction. It is important for educators to note that as teaching venues evolve into entirely virtual experiences, that established methods continue to be effective if adapted properly to new environments. Decades of research within the field of instructional technology have revealed that media is not what makes the difference in learning but the methods (Clark, 1994). With a well developed set of instructional strategies, educators can be prepared to teach and teach well in any environment. The most prevalent strategies are discussed here, along with examples of their occurrences in the cases under study. Further contributions to the pedagogical foundation of instructional strategies that promote dialogue can then be made.

### *Practice*

Although the concept of practice was not elicited from the literature review or experts it was nonetheless a factor in this study. To illustrate, consider case 2, where major technical difficulties were a hinderance to dialogue. Practice with the basic intent of having the students get used to the technology, comfortable with connecting and pre-emptively staving off problems may have led to more effective use of the SWBCS and thus promotion of dialogue. Cases 1 and 3 suggest that practice was beneficial because when practice sessions were held, technical difficulties were minimal and there was no report of

hinderance to dialogue. Incorporating practice with the SWBCS is a suggested method to prevent technical difficulties and in turn promote more effective use of the SWBCS.

### *Discussion*

Discussion is an instructional strategy that has the potential to promote dialogue that emerges throughout the literature (Weston & Cranton, 1986; Lobry de Bruyn, 2004; Tu & McIsaac, 2002; Jennings, 2005; Schullo, 2005). Discussion took place in all three cases, however, the purposefulness of it in each case varied. In case 1, although discussion was an instructional element that the instructor encouraged, she did not set out to have formal discussion periods. Her method for encouraging discussions was developed through the way in which she organized the content into logical chunks. Her instructions for how a class session should proceed also included how students were to conduct themselves when they had a question – hold their question for a logical break in the content. By the use of structural elements, this instructor implemented the use of discussions. The SWBCS was particularly useful to her management of discussions as students could indicate to her that they had a question by clicking the “raise hand” icon or typing it in the direct messaging area without interfering with the instructional momentum. It was as if the questions went into a queue and the instructor handled them in a logical sequence at a reasonable break in the content.

Instructor 2 had formalized discussion activities. She planned out discussion topics/activities and used the break-out room tool in the SWBCS to group students. The

strategy she implemented was recommended by Schullo, (2005) in which electronic content is disseminated to students in real-time via the file sharing tool in the SWBCS. Then the break-out group talks about the subject or performs the task and returns to the whole class with an answer or demonstration.

Although some discussion occurred in case 3, it was not formally planned. This seems to go along with the fact that the instructor in this case did not plan much in general. The discussions that did occur were on target, except for when the instructor became passionate about one of the ideas and went on a tangent. At this point, what would be considered a 2-way discussion deteriorated. Ironically, the very fact that the SWBCS has the “talk” button kept this instructor from going down too many “rabbit trails”, keeping the discussions more learning-centered. This is because the instructor frequently forgot to press the “talk” button. So before he could get too far in his speech, students would notify him via emoticons, hand raising or direct message that they couldn’t hear him. It could be likened to a “reset” switch, whenever instructor 3 noticed that he hadn’t pressed the “talk” button, he stopped, collected his thoughts, pressed the “talk” button and the discussion would get back on track.

Interestingly, in the casual observation of this instructor in the face-to-face classroom, students did not interrupt him when he began to lose focus and talk incessantly although their body language indicated that they were “tuned out” (eyes rolling/glossed over/closed, slumped posture). It seemed the SWBCS offered several outlets for the students to express that the discussion had gone off topic without directly interrupting the

instructor. Whereas they did not seem comfortable with speaking up in the face-to-face classroom, they were not inhibited about using the tools in the SWBCS to communicate the loss of direction in the discussion.

### *Feedback*

Instructional feedback contributes to promoting dialogue (Hough & Duncan, 1984; Gagne, 1985; Chickering & Gamson, 1986; Tu & McIsaac, 2002; Lobry de Bruyn, 2004). Again, the provision of feedback was observed in all three cases to varying degrees. The instructor in case 1 provided constructive feedback during the discussion portions of the SWBCS sessions. The feedback was focused and often included an elaborative example. This seemed to spur further dialogue. When students were provided with relevant examples, they often came up with their own to share.

The feedback in case 2 was activity-based. After students or groups of students completed an activity, the instructor provided comments or follow-up questions. Her approach also resulted in additional dialogue because she often asked students to explain the steps they took to complete a task or the reason behind their response.

The instructor in case 3 frequently emphasized to students that he was available to provide individualized feedback on their research project proposals. He did indeed offer to “meet” students in the SWBCS to discuss the projects. It was up to the students to take advantage of the opportunity.

### *Respecting Diverse Talents and Perspectives*

Respecting diverse talents and perspectives is another instructional strategy shown to promote dialogue (Chickering & Gamson, 1989; Anton, 1999; Jennings, 2005). One of the ways to allow this strategy to play out is to invite guest speakers to share their knowledge, unique insights and/or talents with students. There was evidence of this strategy in each case. In cases 1 and 2, this strategy was planned into each course. In case 1, guest speakers were scheduled at the outset to fill gaps in the experiential knowledge of the instructor herself. In case 2, guest speakers provided instruction in specialized skills, e.g. library research. Although the instructor in case 3 did not formally invite guest speakers to hold class sessions, he did explain many times that he would be more than happy to link students with experts that could supply their viewpoint on the topic associated with the student's research proposal. In a face to face classroom, time, expense and travel constraints may complicate making arrangements for guest speakers to attend a class session. The SWBCS provides a convenient venue for inviting guest speakers into "the classroom."

### *Emphasizing Time on Task*

Emphasizing time on task is another strategy that can promote dialogue (Chickering & Gamson, 1986). Knolle (2002) found that a useful way of keeping students on task was to orient the students to the subject by displaying slides showing the current course topic or discussion item, making their presence and effort in the session worthwhile. The SWBCS offers the advantage of not only displaying slides but also pushing them

to students immediately. Each of the cases in this study provided evidence for the use of emphasizing time on task to promote dialogue. The instructor in case 1 purposefully included a slide for nearly every concept. After displaying and explaining several of the slides she would pause and ask for questions or comments which the students generally had. The instructor in case 2 also purposefully emphasized time on task but in a more active-learning way. Activities oriented students to the task and made them practice/complete the task immediately. The instructor in case 3 had slides but was disorganized about how he displayed and explained them. This is a case where not emphasizing time on task caused the instructor to lose momentum. Some dialogue still occurred but relative to cases 1 and 2 it was less learning-centered. In any case, the SWBCS does provide features that serve well to implement the strategy of emphasizing time on task.

### *Group Work*

Group work is recommended by researchers to promote dialogue (Weston & Cranton, 1986; Tu & McIsaac, 2002; Schullo, 2005). The SWBCS “break-out” room feature was used by instructor 2. Students were placed in their own virtual rooms for small group discussion and activities. There was a steady stream of talking, texting and whiteboard writing, i.e. dialogue, in each group as indicated by how the tools light up when in use. The instructor in case 1 did not assign any group work and therefore did not use the strategy or SWBCS tools to implement it. The instructor in case 3 did not assign any formal group work but strongly encouraged students to pair up outside of class for



peer review of research proposals. In fact, some students did pair up and use the SWBCS among themselves to discuss their projects.

#### *Relationship to Prior Studies/Pedagogical Foundations*

The SWBCS offers tools that allow for the use of instructional strategies that promote dialogue. The strategies and their use in the cases above give examples of how the tools in an SWBCS can allow for unique implementation of instructional methods. The instructional strategies implemented in these cases can generally be related back to strategies shown in previous research to promote dialogue. What is unique is how the strategies play out in the cases examined in this study. Those most frequently observed and those that connect back to established pedagogical strategies that promote dialogue were discussed here, along with examples of their occurrences in the cases under study.

#### *Methodological Implications*

The use of several methods to collect data proved useful in addressing the research questions. The Delphi served to confirm that the instructional strategies found to promote dialogue in the literature and pilot study were well-founded and used by experts. The instructor interviews served to get at the core of addressing the research questions along with other factors relating to dialogue. According to Moore & Kearsley (1996), dialogue is affected by educational philosophy. The initial instructor interview allowed the researcher to determine that each instructor had a varying philosophy that included a range from andragogy, student-centeredness and applied behavior analysis. Indeed, these philosophies exhibited themselves in the strategies utilized by each instructor in the

SWBCS sessions. The SWBCS proves to be at least somewhat effective for a minimum of three different educational philosophies given that the technology works well enough during any given session to allow for strategies to be implemented at all. The student surveys were adequate to consider other variables that affect dialogue at least at a perfunctory level. The student surveys allowed for examination of native language, group size and amount and quality expectations of dialogue in the SWBCS. The responses to these inquiries were descriptive but of little variability. Each one of these factors could be examined in much more detail in another study with more specific survey questions. Follow-up instructor interviews were particularly useful in gauging perceived effectiveness of the SWBCS because the questions to the instructor addressing this issue were straight forward and specific, having been refined iteratively. The student follow-up interviews served to inform a general student perception of their SWBCS experience. Keeping the interview protocol open-ended turned out to garner a wealth of information, students seemed more than happy to describe their experiences, good or bad. Schullo, (2005) recommended that researchers who replicated the use of her observation instrument should, “divide it up” and “concentrate further research on just one aspect” (p. 270). This suggestion proved to be beneficial as focusing on the dialogue section of the instrument was fairly manageable. Finally, the reflective journal was extremely helpful in filling in intuitive gaps.

### *Tool Use Implications*

The SWBCS has several features that are particularly well suited for implementing instructional strategies that promote dialogue. Several of the tools in the SWBCS were found to be used most frequently and easily. These tools include the duplex audio feature which allowed the instructor and students to dialogue in real-time. The direct messaging area was used almost as heavily to dialogue and more so in terms of learner-learner interaction. Secondary to the duplex audio, the whiteboard was the main instructional presentation tool. Finally, students particularly utilized the emoticons to express themselves.

### *Lessons Learned*

After a great deal of observation, interviewing, participating, surveying and generally communicating with a large number of stakeholders in the use of an SWBCS the researcher learned a lot about the nature of the synchronous online environment that is worthy of note here. Virtually any instructional strategy used to promote dialogue in the face-to-face classroom can be implemented in the SWBCS albeit with a different tool or perspective. Evidence of this was displayed in the numerous and variable strategies that the instructors in this study implemented. The fact that instruction can take place anywhere there is a computer with an internet browser makes the use of the SWBCS particularly convenient.

That being said, there are some guidelines for effectively implementing strategies that promote dialogue in the SWBCS classroom, several examples of this follow. For

instance, practice and planning are essential to the success of an SWBCS session. This is particularly the case during the first few sessions, to get used to the technical features for both instructors and students alike. Practice sessions prior to the official instructional session typically relieve technical issues or communicative anxiety leaving instructors and students with more cognitive energy to focus on instruction and learning. Also, in order to successfully manage the SWBCS classroom, instructors have to be capable of multi-tasking, as students, content and technological interface must be managed simultaneously. In a similar vein, instructors have to be able to make adjustments if plans go array. Neither students nor technology behave predictably all the time.

Finally, there were profound affective themes that accompanied the SWBCS. The researcher did not set out to examine these factors and thus did not measure them per se but sensed them throughout the study. Instructors and students alike would express their fear of getting connected to and using the SWBCS correctly. Simply expressing the fear to others seemed to relieve some level of it. The relief after the completion of a session was also palatable. At the conclusion of any given session students (and sometimes instructors) were amazed at the technological sophistication of the system and even more surprised at their ability to use it!

#### *Future Research*

This final section outlines futures directions that this type of research may take. There are so many factors that affect dialogue, e.g. educational philosophy, group size, learner autonomy and structure, to name a few, that any one of them could be examined

more in depth within each case. Examining cases individually may also reveal more about why instructors use the strategies they choose to promote dialogue. Instructors could be followed longitudinally to see how their technological and pedagogical skill set evolved within the SWBCS.

On the other hand, examining a larger number of cases may reveal additional instructional strategies that promote dialogue in the SWBCS. For instance, in this study, the courses were all blended whereas a future study could include courses that were fully distant as face to face meeting may influence dialogue. In addition, the scope could be broadened to include more than one university. A wide variety of content areas could be studied for comparison and contrast of strategies throughout the SWBCS sessions. Even one or two strategies could be targeted to determine what tools are best to implement them.

Another study might address some of the affective themes noted in this research; fear, communicative anxiety, as well as relief. Learner-learner dialogue is yet another facet to be studied in this line of research. Studying the social presence would also lead to a vast array of studies looking at how instructors build rapport, learning community formation or preferred methods of communication in the SWBCS.

All of these research avenues could be approached from a variety of perspectives, instructors, students, experts and observers. The expert pool could be enriched by appealing to special interest groups within associations. The same goes for recruiting additional instructors and their students.

## *Conclusion*

Instructional strategies that have the potential to promote learning-centered dialogue in the synchronous environment online were examined in three cases. Various perspectives were taken into account including (a) experts, (b) participant-observer, (c) instructors and (d) students. Methods included (a) interviews, (b) participant-observations (c) instructor and student surveys (d) reflective journal and (e) a consensus building exercise.

Several instructional strategies having the potential to promote learning-centered, synchronous dialogue in the online environment were garnered from this study (see Figure 7). The reasons that instructors used these strategies are: (a) previous teaching experience, (b) educational philosophy/style, and (c) enhancing dialogue between both instructor-student and student-student. SWBCS tools that instructors used to implement the instructional strategies having the potential to promote learning-centered synchronous dialogue online were: (a) duplex audio, (b) direct messaging (text chat) and (c) the whiteboard. Instructors used these tools because: (a) they were simple to learn and use, (b) they allowed for content presentation, i.e. whiteboard and (c) they allowed for real-time dialogue, i.e. duplex audio and direct messaging.

The perceived effectiveness of the SWBCS varied from ineffective due to technological barriers to effective to the point that the instructor will continue to use it and recommend its use to others.

The importance of these strategies for educators is the fact that they can mediate the affects of transactional distance by promoting dialogue to bridge gaps in communica-

tion. A SWBCS offers many options for dialogue through a variety of tools opening the door to alternative modes of communication in the distance education environment.

There are many factors to consider when implementing strategies to promote dialogue in a SWBCS. Practice sessions and preplanning reduce communicative anxiety and technical barriers. A SWBCS accommodates varying educational philosophies, such as learner-centeredness. Group size can also affect dialogue. Group management can be accommodated seamlessly in the SWBCS with tools such as hand-raising to accept questions and call for responses and break-out rooms for small group activities. The amount and quality of dialogue between instructor and learner can be enhanced with the use of an SWBCS.

Learning is a shared endeavor (Dewey & Bentley, 1949/89). Dialogue among learners in an SWBCS should be considered. The SWBCS provides real-time opportunities for students to collaborate. Community building, or human networking online seems to be a key element in extending and sustaining learning (Hanson, K. & Clem, F. 2006). Learner-content relationships affect dialogue as well. Through the use of a SWBCS, content can be presented, interacted with and reviewed. A SWBCS enhances dialogue when, within the framework of transactional distance, the instructor gives special attention to implementing specific strategies that promote dialogue. Instructional strategies aimed at promoting dialogue augment the effects of transactional distance resulting from a lack of structure. Promoting dialogue also contributes to overcoming low levels of learning autonomy.

A SWBCS extends real-time dialogue beyond the traditional classroom. First, it relieves communication apprehension. Guest speakers can be invited, conveniently, giving students additional perspectives and expertise. Discussions can occur in more than one format, audio or text. In addition, discussions can be recorded for later use. Keeping office hours in the SWBCS allows another opportunity to enhance dialogue.

The future of education is here. The proliferation of online courses in universities is on the fast track. For the most part, instructors implement strategies they are familiar with from previous experiences in the traditional classroom or online. With the onset of distance education, instructors would be wise to critically examine their instructional strategies and adapt them, if need be, to the online environment.

A SWBCS is a robust tool for promoting dialogue given the fact that it has a variety of two-way communication mechanisms. In addition, a SWBCS offers opportunities for dialogue in real-time, enhancing the learning experience for individuals and groups of students. There is also the possibility that this environment challenges students to higher order learning activities.

Although a SWBCS interface is sophisticated and requires some training and practice this notion is not exclusive to the synchronous online environment. Perhaps the SWBCS environment is closer than we think to the traditional classroom and especially when compared to asynchronous course delivery. With this perspective in mind instructors may consider incorporating synchronous online sessions into their repertoire to increase dialogue in their courses and thus mediate the affects of transactional distance.



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## Appendices

## Appendix A: Interview Protocols

### *Initial Instructor Interview Protocol*

1. Name:
2. Course:
3. Class Size:
4. Briefly describe the content of the course:
5. Who is the target audience for this course?
6. Describe educational philosophy.
7. Describe your teaching style.
8. How do you currently interact with your students?
9. What instructional strategies do you anticipate using in your upcoming Elluminate Live! sessions?
10. How will you use Elluminate Live! to implement the instructional strategies in your upcoming course?



*End of Semester Instructor Interview Protocol*

1. Name:
2. What instructional strategies did you use that you felt were MOST effective? Why?
3. What instructional strategies did you use that you felt were LEAST effective? Why?
4. What Elluminate Live! tools did you feel were most useful to implement these strategies?
5. If you were to recommend instructional strategies to a colleague who wanted to use Elluminate Live! which ones would they be?
6. Will you continue to use Elluminate Live! in your upcoming courses?
7. Please provide any additional comments.

## Appendix B: Synchronous Student Survey

### Fall07 Pre-Synchronous Student Survey

#### Information for People Who Take Part in Research Studies

I am a doctoral candidate in the College of Education, Instructional Technology program. As part of a pilot study to inform my future dissertation, I am observing the nature of synchronous dialogue online using web-based software such as Elluminate Live!, the same software your instructor is using in this class. I want to know what instructional strategies exist and are used to promote quality synchronous dialogue online. When you login to Elluminate I do not assume to know that the name you log-in as is your real name. You can log-in with a pseudonym if that would make you feel more comfortable but in any case I do not know who you are and do not have any interest in finding out who you are for the purposes of this research.

If you choose to participate, you will answer a brief web-based survey with no personal identifiers.

The survey will take approximately 5-10 minutes.

You will not be paid for your participation in this study.

By taking part in this research study you will be providing information that may be of interest to other instructors who teach online. There are no anticipated risks for participation in this research study.

The results of this study may be published in a dissertation. The published summary results will not include your name or any other information that would personally identify you in any way.

Your decision to participate in this research study is completely voluntary. You are free to participate in this research study or to withdraw at any time. Please proceed. Thank you!

#### 1. Consent to Take Part in This Research Study

**Check the box below if you agree that in this study:**

**I have fully read or have had read and explained to me this informed consent form describing this research project.**

**I realize I have the opportunity to question the person in charge of this research and receive answers that I deem satisfactory.**

**I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.**

yes, I agree (please proceed, thank you!)

no, I don't agree (you may close with window at any time)

Next >>

## Fall07 Pre-Synchronous Student Survey

**2. In order to link your responses to a follow-up survey please provide the following information:**

The first   
two  
letters  
of your  
first  
name

**3. Your month and date of birth**

Month of birth      Date of birth  
-    
-  
-

**4. Please select your student status**

Undergraduate       Graduate       Non-degree seeking       Certificate seeking

**5. Who is your instructor for this course?**

Instructor 1     Instructor 2     Instructor 3     Instructor 4     Instructor 5     Instructor 6     Instructor 7

**6. What is your native language?**

English

Spanish

Other (please specify)

**7. How many distance education (online) courses have you taken prior to this semester?**

0                       1                       2                       3                       4 or more

**8. Were you aware this course requires/offers a synchronous (real-time, online) component?**

yes

no

I don't know

**9. How clear are the course instructions about the technology used in this course?**

not clear

somewhat clear

very clear

not applicable

**10. Often do you expect to dialogue with your INSTRUCTOR(s) (dialogue may include e-mail, chat, file exchange, discusson, phone call, meet in person, share resources - any contact)**

none

1 contact per week

2-4 contacts per week

daily

several times per day

comment on the types of dialogue you expect to have

**11. How often do you expect to dialogue with other STUDENTS (dialogue may include e-mail, chat, file exchange, discusson, phone call, meet in person, share resources - any contact)**

none

1 contact per week

2-4 contacts per week

daily

several times per day

comment on any types of dialogue you expect to have

**12. When you contact your instructor in any form (e-mail, phone) for help of any kind, (e.g. content, technical issues, etc.) how soon do you expect he/she to respond?**

immediately

within 24  
hours

within 48  
hours

within 72  
hours

72+ hours

**13. How much instructor guidance do you expect?**

none

a little

some

a lot

don't know

Add any comments about the instructor guidance you generally expect

**14. To what degree do you consider yourself an autonomous (independent) learner?**

I'm not

I'm somewhat  
autonomous

I'm very  
autonomous

I don't know

<< Prev Done >>

*Fall07 Post-Synchronous Student Survey*

Fall07 Post Synchronous Student Survey

**Information for People Who Take Part in Research Studies**

I am a doctoral candidate in the College of Education, Instructional Technology program. As part of a pilot study to inform my future dissertation, I am observing the nature of synchronous dialogue online using web-based software such as Elluminate Live!, the same software your instructor is using in this class. I want to know what instructional strategies exist and are used to promote quality synchronous dialogue online.

If you choose to participate, you will answer a brief web-based survey with no personal identifiers.

The survey will take approximately 10 minutes.

You will not be paid for your participation in this study.

By taking part in this research study you will be providing information that may be of interest to other instructors who teach online. There are no anticipated risks for participation in this research study.

The results of this study may be published in a dissertation. The published summary results will not include your name or any other information that would personally identify you in any way.

Your decision to participate in this research study is completely voluntary. You are free to participate in this research study or to withdraw at any time. Please proceed. Thank you!

**1. Consent to take part in this research study**

**Check the box below if you agree that in this study:**

**I have fully read or have had read and explained to me this informed consent form describing this research project.**

**I realize I have the opportunity to question the person in charge of this research and receive answers that I deem satisfactory.**

**I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.**

yes, I agree (please proceed, thank you!)

no, I don't agree (you may close this window at any time)

Fall07 Post Synchronous Student Survey

Page 2

**2. In order to link your responses to the pre-synchronous student survey you took at the beginning of the semester please enter the following information:**

the first   
two  
letters  
of your  
first  
name

**3. Please select your month of birth AND day of birth**

Month of birth    Day of birth  
--                                       

**4. Who is your instructor for this course?**

Instructor 1	Instructor 2	Instructor 3	Instructor 4	Instructor 5	Instructor 6	Instructor 7
--------------	--------------	--------------	--------------	--------------	--------------	--------------

**5. Did you participate in an Elluminate practice session?**

yes	no	I don't know	not applicable
-----	----	--------------	----------------

**6. If you did participate in an Elluminate practice session how well did you prepare you for the real, live session(s)?**

it did not prepare me well
it prepared me somewhat
it prepared me well
I was already prepared
not applicable

**7. How difficult was it to set up the technology required for using the synchronous software for Elluminate Live?**

not difficult
somewhat difficult
very difficult
not applicable

**8. How easy was the Elluminate interface to use?**

not easy	somewhat easy	easy
----------	---------------	------

Fall07 Post Synchronous Student Survey

**Your experiences in online learning environments**

**9. Describe in your own words how instructor class used Elluminate, (ie. groupwork, discussions, lecture, a combination)**

**10. For the purposes of this study, the term dialogue is defined as, "...the interplay of words, actions, and ideas and any other interactions between teacher and learner when one gives instruction and the other responds" Do you feel as though your instructor's use of elluminate sessions enhanced the dialogue component of your course?**

no	somewhat	yes
----	----------	-----

**11. If you felt as though use of elluminate session(s) by your instructor enhanced the dialogue component of your course describe how so.**

**12. How useful did you find the following features of Elluminate in terms of enhancing the dialogue component of your course?**

	not useful	somewhat useful	very useful
text chat area	<input type="text"/>	<input type="text"/>	<input type="text"/>
two way audio	<input type="text"/>	<input type="text"/>	<input type="text"/>
hand raising	<input type="text"/>	<input type="text"/>	<input type="text"/>
yes/no (green check mark/ red x)	<input type="text"/>	<input type="text"/>	<input type="text"/>
emoticons (smiley/confused faces)	<input type="text"/>	<input type="text"/>	<input type="text"/>
whiteboard	<input type="text"/>	<input type="text"/>	<input type="text"/>
application sharing	<input type="text"/>	<input type="text"/>	<input type="text"/>
breakout rooms	<input type="text"/>	<input type="text"/>	<input type="text"/>

Fall07 Post Synchronous Student Survey

**Your experiences in online learning environments**

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no	somewhat	yes
----	----------	-----

**11. If you felt as though use of elluminate session(s) by your instructor enhanced the dialogue component of your course describe how so.**

**12. How useful did you find the following features of Elluminate in terms of enhancing the dialogue component of your course?**

	not useful	somewhat useful	very useful
text chat area	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
two way audio	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
hand raising	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
yes/no (green check mark/ red x)	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
emoticons (smiley/confused faces)	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
whiteboard	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
application sharing	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
breakout rooms	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
polls/quizzing	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
virtual tours (guided web surfing)	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>
two way video	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>



**13. To what extent did you have technical problems with the following**

	no problem	minor problem	major problem
connecting to the session			
text chat area			
two way audio			
hand raising			
yes/no (green check mark/ red x)			
emoticons (smiley/confused faces)			
whiteboard			
application sharing			
breakout rooms			
polls/quizzing			
virtual tours (guided web surfing)			
two way video			

**14. If you had technical problems, to what extent did these problems hinder your ability to dialogue with your instructor in the elluminate session?**

it didn't hinder me from dialogue
it hindered me somewhat from dialogue
it hindered me a lot from dialogue
I gave up and didn't dialogue

**15. About how many people (including yourself and instructor) were in your elluminate session(s)?**

2-9	10-15	16-20	20+
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**16. My ability to dialogue with my instructor in the elluminate session(s) would have been enhanced if the number of people in my session was**

less
more
the number of people in my elluminate session did not enhance/diminish my ability to dialgoue with my instructor

**17. In general, the AMOUNT of dialogue I had with my instructor in this course was enhanced by Elluminate session(s)**

no	somewhat	yes
----	----------	-----

**18. In general, the QUALITY of dialogue I had with my instructor in this course was enhanced by Elluminate session(s)**

no	somewhat	yes
----	----------	-----

**19. Please describe anything your instructor did that enhanced the quality of the dialogue you experienced in the Elluminate session(s)**

**20. I would like to interview a few students to get more detail about their experiences in the Elluminate environment. Please provide your email address and phone number in the space below if you are willing to participate in an interview that would take no more than 30 minutes. This is completely voluntary. Thank you!**

<< Prev

Done >>

Appendix C: Observation Tool

<b>INSTRUCTIONAL STRATEGIES - ESTABLISHES SOCIAL PRESENCE</b>	<b>Place a check mark next to the strategy if observed</b>	<b>Document which SWBCS tool was used to implement the strategy</b>	<b>Notes</b>
USES CASUAL LANGUAGE			
HUMOR			
RAPPORT-BUILDING			
GREETINGS			
SHARES AUTOBIOGRAPHICAL INFORMATION			
INSTRUCTIONAL STRATEGIES - DIRECT DIALOGUE PROMOTING			
CAPTURES STUDENT ATTENTION			
PROVIDES OPPORTUNITIES FOR DISCUSSION			
mediates discussions			
PROVIDES PROMPT/ CORRECTIVE FEEDBACK			
DISPLAYS INSTRUCTIONAL IMMEDIACY			

<b>INSTRUCTIONAL STRATEGIES - ESTABLISHES SOCIAL PRESENCE</b>	<b>Place a check mark next to the strategy if observed</b>	<b>Document which SWBCS tool was used to implement the strategy</b>	<b>Notes</b>
Individual problems were handled promptly w/o too much disruption to the rest of the class			
<b>ASSIGNS GROUP WORK</b>			
mediates groups			
<b>ADAPTS CONTENT</b>			
to learn preferences			
to comprehension levels			
<b>COMMUNICATES HIGH EXPECTATIONS</b>			
models high expectations thru quality lecture and feedback			
refers to the course syllabus, grading scale, and requirements during the online class session to clarify expectations for projects, assignments, etc.			
<b>EMPHASIZES TIME ON TASK</b>			
focuses the discussion and lecture by displaying slides showing the current course topic or discussion item			
<b>RESPECTS DIVERSE TALENTS AND WAYS OF LEARNING</b>			

<b>INSTRUCTIONAL STRATEGIES - ESTABLISHES SOCIAL PRESENCE</b>	<b>Place a check mark next to the strategy if observed</b>	<b>Document which SWBCS tool was used to implement the strategy</b>	<b>Notes</b>
reframes students' comments when necessary to facilitate others' understanding of issues			
varies activities, lectures, question and answer, discussion and/or guest speakers			
<b>REINFORCES IDEAS, CONCEPTS &amp; KNOWLEDGE</b>			
acknowledge student comments throughout the class period			
<b>ENCOURAGES ACTIVE LEARNING</b>			
<b>ENCOURAGES CONTACT B/W INSTRUCTOR AND STUDENTS</b>			
<b>AUTHORITY IN USE</b>			
to maintain credibility			
instructional momentum			
<b>INSTRUCTIONAL STRATEGIES - STRUCTURE RELATED</b>			
Materials were ready prior to class			
Class started on time			
Instructor appeared well prepared for class			

<b>INSTRUCTIONAL STRATEGIES - ESTABLISHES SOCIAL PRESENCE</b>	<b>Place a check mark next to the strategy if observed</b>	<b>Document which SWBCS tool was used to implement the strategy</b>	<b>Notes</b>
Instructor had a clear organizational plan			
Explained the goal or objectives for the period			
Instructor clearly organized and explained assignments			
Introduced organization of the class period			
Instructor provided clear directions or procedures			
Previewed lecture/ discussion content			
Skills required during the session were reasonable			
Reviewed prior class material to prepare students for the content to be covered			
General			
USED A VARIETY OF THE TOOLS AVAILABLE IN THE SWBCS			
MADE RECORDINGS AVAILABLE TO STUDENTS AFTER CLASS			

## Appendix D: Pilot Study

### Purpose

A pilot study was conducted to provide direction for the rest of this investigation. Specifically, the pilot study served to implement and refine some of the methods. First, the recruitment method used to solicit participation of instructors was implemented. Basically, recruitment of instructors was via e-mail. A sample e-mail can be viewed in Appendix ---

### Setting

The study took place over one summer semester (2007). The setting was the University of South Florida, a large, state university located in the southwest. This study is limited to the main campus of the university although there are several others. The courses under study were graduate courses offered through the College of Education. The courses were all offered fully at a distance with the main delivery mode being the asynchronous learning management system, Blackboard.

### Sample

#### *The courses*

The courses in this pilot study were each taught at the graduate level. These courses were offered fully at a distance with the primary delivery being the asynchronous learning management system, Blackboard. Table 12 provides a summary of the course for each case.

Table D1. Overview of cases – the course sample

Case	# Students enrolled	Description
1	36	Analysis of major types of educational research designs, including experimental, correlational, ex post factor and case studies
2	27	Topics include instructional strategies, interactivity, course development, research, delivery systems, needs analysis, administration, and evaluation.
3	54 (2 sections)	The issues surrounding the use of instructional technology in the k-12 education system

*The students*

A majority of the students in the pilot study were full-time teachers in the k-12 educational system pursuing graduate degrees in educational administration. Of total enrollment (117), 54 students responded to the pre-synchronous survey and 46 students responded to the post-synchronous survey. A majority of the students (85.7%) reported that their native language was English. 23.5% reported that they had not taken a distance education course before. 96% of students expected to dialogue with their instructor 1-4 times per week and 79.6% of students expected to dialogue with other students 1-4 times per week. After contacting their instructor in any way (telephone, email, chat) 94.0% of students expected a response from their instructor within 24-48 hours. 88% reported that they expected some or a little guidance from their instructor throughout a semester course. 98.1% considered themselves somewhat or very autonomous. About half of the students (49.0%) reported having used a synchronous web-based course system before. And finally, 74.5% of students reported that the Elluminate Live! interface was not difficult to use.



*The instructors*

The sample was nonprobabilistic and purposeful. Three instructors volunteered to participate in the study and agreed to encourage their students to participate as well. The basic requirements to participate included a willingness to use the SWBCS a minimum of two times, complete an instructor interview and encourage students to complete a pre-synchronous survey and a post-synchronous survey. Each instructor and their class was considered a separate case.

Table D2. Overview of cases – the instructor sample

---

Case	Degree, Teaching Experience/Research/Professional Experience
1	Ph.D., Educational Psychology with a concentration in Research Design, Measurement, Statistics, and Program Evaluation. As an associate professor, has taught for 8 years in the areas of educational measurement, 3 years online, using the LMS – Blackboard. Had not used a SWBCS before.
2	Ph.D., Curriculum and Instruction with a concentration in instructional technology and project management. As an adjunct professor, has taught for 5 years in the area of distance learning. Has taught online, using the LMS – Blackboard and SWBCS throughout teaching tenure.
3	Ph.D., Curriculum and Instruction with a concentration in instructional technology and medical informatics. As an adjunct professor, has taught for 5 years in the area of technology management and administration for k-12 educators. Has taught online, using the LMS – Blackboard for 5 years and SWBCS for a year.

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*The instructors – via the instructor interview*

Two of the three instructors participated in the instructor interview. The instructors were asked about their teaching philosophy and style as this would likely influence the instructional strategies they chose. In case 2, the instructor mentioned, “My educa-

tional philosophy emanates from the pleasure of teaching and interacting with those who are eager to learn”. This statement corresponded with the instructional strategies she planned to use in the SWBCS, such as “group discussion” and “making better connections”. The instructor’s philosophy and planned instructional strategies were also related in case 3. For example, instructor 3 mentioned that she approached instruction with a constructivist perspective and then planned on using the SWBCS to . “present ideas to the larger group” and “share URL’s”. These strategies relate to providing resources and then allowing students to use them to learn. Some of the responses from the instructor interview are presented in Table D1, Appendix D. A main focus of this inquiry is what instructional strategies have the potential to promote QLCD in the synchronous environment online. Therefore, observations of the synchronous online environment were made to see what strategies could be detected. The observations were guided by the SWBCS observation tool, first created and used by Schullo (2005). A scaled-down version was used in this pilot study, specifically focusing on instructional strategies that promote dialogue. Another central focus of this investigation is how instructional strategies are used in the SWBCS. This aspect can also be examined via observations. The observations revealed the following findings:

*Expectations and findings from observations case 1.*

Case 1: technology barrier

Due to the fact that the instructor in case 1 had not used SWBCS before it was expected that this instructor may encounter some barriers. This turned out to be the case

in terms of technology. Instructor 1 attempted to use the SWBCS five times. The first time, instructor 1 did not sign in as a moderator, limiting the tools that he could use, one of which was the ability to upload a power-point presentation which was the focal point of his lesson, therefore this session did not go as planned. Prior to session five, instructor 1 attempted to use a brand new computer to run the Elluminate Live! session, unfortunately, the instructor did not have time to test the new computer and realized half way into the session that he had no microphone or speakers, he did adapt somewhat by using the chat tool.

#### Case 1: instructional strategies

Given that instructor 1 had not used a SWBCS before it was predicted that only some of the strategies that were revealed to promote dialogue in the literature review would be used. For the most part, this was the case. In terms of the instructional strategies that were observed, instructor 1 did use many of the strategies that the literature review revealed as adding to the structure component of the course. Some examples were, providing relevant materials prior to beginning a session, reviewing content from previous sessions and presenting the objectives for the upcoming session. Although a majority of the session time was spent lecturing, instructor 1 did stop frequently to see if the students had any questions. Overall, the sessions resembled that of a review; students were to view the materials prior to the synchronous session, the materials were covered during the session and students had an opportunity to ask questions throughout.

*Expectations and findings from observations case 2.*

Case 2: technology

In case 2, the instructor elicited input from the students about when they wanted to meet in the SWBCS via a survey, she held several practice sessions and had a technical producer available to students. She also provided a make-up assignment for students that absolutely could not attend the synchronous session. These factors may have contributed to the fact that there were no major technical problems. As an aside, one student could not configure the computer she was using to connect with the SWBCS but this could have been due to the fact that she was located in an unfamiliar computer lab with a firewall. This student also expressed anxiety as to her ability to use the SWBCS at all.

Case 2: instructional strategies

Being that instructor 2 had used a SWBCS for several years and that her educational philosophy and teaching style reflected that of promoting dialogue, it was expected that she would use a good deal of the instructional strategies found to promote dialogue in the SWBCS. In fact, she used a wide array of instructional strategies throughout the synchronous session. These strategies included facilitated group discussion, small group break-out time, a game, whiteboard activities and presentations and polls. In addition, she made it a point to show students all the tools in the SWBCS (quizzing, graphing calculator, video camera, application sharing and virtual tours) and provide them with ideas about what the tools would be best to use for implementing particular strategies. This is also due in some part to the fact that the course content is distance learning and the target audience is mainly teachers.

*Expectations and findings from observations case 3.*

Case 3: technology & communication

A few notes about particular issues in case 3 will help to set the stage for some of the things that happened during the synchronous sessions. One issue that started out as a communication issue became a technological problem. Note that, first of all, this instructor had two sections of the same course with over 25 students in each section. One of the sections was a cohort of students who challenged the idea that they should have to meet synchronously at all. This led to dissent as to when (or even if) a synchronous session could be held to accommodate these learners. Not only that, some students were provided with or used the wrong password to login to the SWBCS. This issue never seemed to get completely cleared up as students continued to login incorrectly throughout the semester.

*Case 3: instructional strategies*

Despite these barriers in case 3, it was expected that the instructor would use some of the instructional strategies that promote dialogue given her constructivist philosophy and her style as a facilitator. She also had experience using the SWBCS before and her educational background is in instructional technology. Instructor 3 did use the instructional strategies she mentioned during the interview. She used break-out rooms, group discussions and the whiteboard

Table D3. Instructor interview responses

---

Case	Teaching Philosophy/Style
1	<p>My educational philosophy emanates from the pleasure of teaching and interacting with those who are eager to learn. Through my experiences, teaching has become as much a passion as a career. I learn everyday, from my students, from my colleagues, from my own research and experiences. Therefore, I treat all teaching, learning and research opportunities as a means to evaluate and improve myself as well help others to learn.</p>
2	<p>Through personal reflection and well known theoretical approaches, my teaching approach is more that of a facilitator rather than what one typically thinks of as a “teacher”. I feel we can encourage lifelong learning and the perpetual pursuit of knowledge as long as we, as educators, continue to ignite interest that motivates students to learn. To accomplish this goal, learning must be relevant and enjoyable, yet still challenging. Education should contain a mixture of theory and application that allows students to understand the content and apply it to their own situations. I find this methodology is especially applicable to both adult and distance education.</p>
3	<p>Constructivist, collaborative as well as individual pursuit of information. I provide the structure and guidance for learning. Students are encouraged to interact with peers and other experts to gather information which will aid them in learning material. They, of course, can also consult with me if needed.</p>

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## Appendix E: Participation/Solicitation/Follow-up emails

### *Delphi Expert-Participant Solicitation*

I'm Shelley Stewart, I am a doctoral candidate in the Instructional Technology program in the College of Education at the University of South Florida (USF). I am conducting my dissertation study on *instructional strategies that have the potential to promote learning centered dialogue in the synchronous web-based environment online*, namely, Elluminate Live! Live! The expert criteria for my study include:

- Experience teaching online with a synchronous web-based course system
- Published works in the field of distance education
- A degree in education, instructional technology or other related field

If you meet these criteria, I would like to solicit your expert knowledge in the area of synchronous distance education. Please send an email to [sstewart@fmhi.usf.edu](mailto:ss Stewart@fmhi.usf.edu) if you would be willing to participate in three rounds of electronic consensus building. Thank you!

### *Instructor-Participant Solicitation*

I'm Shelley Stewart, I am a doctoral candidate in the Instructional Technology program in the College of Education at the University of South Florida (USF). I am conducting my dissertation study on *instructional strategies that have the potential to promote learning centered dialogue in the synchronous web-based environment online*, namely, Elluminate Live! Live! I would like to ask you and your students to consider participating in my study should you choose to use Elluminate Live! Live! (a synchronous virtual classroom with such features as Voice Over Internet Protocol (VOIP), live powerpoint presentations, breakout rooms, textual chat, quizzing, polling and much more).

Benefits:

Elluminate Live! Live! is a free plug-in sponsored by the USF 21<sup>st</sup> Century Center for Teaching Excellence.

Expert training & technical assistance is free, from me ☺, at your convenience for you and your students.

Here are the things I would ask you and your students to do, all told, these items should take no more than about 1 hour of effort (beyond teaching/attending your classes as you would normally do anyway):

1. Instructor – participate in a preliminary interview/survey regarding your instructional philosophy, teaching techniques and the like and an interview after your teaching experience with Elluminate Live! Live!
  - a. Use Elluminate Live! Live! virtual synchronous software 2-3 times throughout the semester to conduct live, virtual class sessions from the comfort of your own home, office, etc. in replacement of or enhancement to face-to-face sessions.
2. Students – complete two web-based Elluminate Live! surveys, pre and a post-Elluminate Live! participation
3. Researcher – access to your Elluminate Live! recordings

Please contact me should you need more information and/or (hopefully) like to participate. Thank you!

*Practice Session Informational email*

Information about the practice Elluminate Live! session is provided below:  
You have been invited to attend a Practice Elluminate Live! Session

To join the meeting, click on the link below:

[http://131.247.100.61:80/join\\_meeting.html?meetingId=1190638601022](http://131.247.100.61:80/join_meeting.html?meetingId=1190638601022)

login: your name

password: eme6936ss (The password is case sensitive.)

If this is the first time you will be using Elluminate Live!, you may be prompted to download some software which may take up to 2 minutes depending upon your Internet connection speed. You can log on to a session 30 minutes before the scheduled session start time.

Please make sure your computer has a microphone and speakers to be able to talk and hear while you are in the Elluminate Live! meeting.



To facilitate your Elluminate Live! experience, please visit <http://www.ElluminateLive!.com/support/> at least a day before your first session to ensure that you have the required software to run Elluminate Live! on your computer and to check your audio set up (click the Configuration Room link at <http://www.ElluminateLive!.com/support/> This way, if you have a problem with Elluminate Live! on your computer you might be able to resolve it before your session. Or you can call Elluminate Live! for support at: 866-388-8674 option 2

-SS

*Follow-up Synchronous Student Survey email*

You are about to participate in a synchronous classroom session via Elluminate Live! Live! You will receive instructions about this soon. Perhaps you have even attended a practice session to check your equipment. If you filled out the pre-synchronous student survey then, thank you! If you have not had a chance to complete the pre-synchronous student survey yet, please do so by clicking on the link below:

[http://www.surveymonkey.com/s.aspx?sm=jfQkIyK\\_2fRdcmIKxaU9sOXg\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=jfQkIyK_2fRdcmIKxaU9sOXg_3d_3d)

Thank you for your time and effort. “See” you in the synchronous session. –SS

## Appendix F: Student Follow-up Interview Protocol

I am interested in your experience in the online synchronous classroom, I'll ask you a few questions about it and you can provide as concise or elaborate answers as you wish.

1. What did you like about the online synchronous classroom?
2. What didn't you like about the online synchronous classroom?
3. Is there anything else about the synchronous online classroom that you would like to tell me? Please go ahead.

The researcher found that this protocol was initially too vague. Follow-up questions were asked, which may be equated to "on the spot" member-checking. For example, if a student claimed that what they liked about the online synchronous session was, "Being at home, not having to deal with parking and still have class and interact", the researcher would ask, "Please expand on the interaction part of Elluminate Live! that you liked."

## Appendix G: Delphi emails

### *Round 1*

Hi, I'm Shelley Stewart, I'm an instructional technology doctoral candidate, at USF. I'm conducting my dissertation study on "instructional strategies that promote learning-centered dialogue in the synchronous environment online." I am interested in your expert input as I build a consensus about learning-centered synchronous instructional strategies. Please fill out the survey at the link provided (it only takes a few minutes!)

[http://www.surveymonkey.com/s.aspx?sm=8CyvwQqxF9ypIAvkTu3bhw\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=8CyvwQqxF9ypIAvkTu3bhw_3d_3d)

I will collect responses from many experts, compile the results and ask you to provide input on what others have to say about this topic (surveys 2 & 3).

In appreciation – Shelley Stewart

### *Round 2*

Recently, you provided your expert opinion in a consensus survey regarding, "instructional strategies in the synchronous online environment" Thank you!

I have compiled the results and ask you to provide your additional expert input on what others have to say about this topic in ROUND 2:

[http://www.surveymonkey.com/s.aspx?sm=Nm5kU7P\\_2fpTEiuPUIW\\_2f\\_2b1ag\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=Nm5kU7P_2fpTEiuPUIW_2f_2b1ag_3d_3d)  
(you may have to copy and paste this link into a new browser window)

In appreciation,

-SS

## Appendix H: Expert Qualifications

Expert	Expert Qualifications
A	<p>Dr. A is the Director of Teaching and Learning Technologies at the University of South Florida-Lakeland. She manages the delivery of distance learning courses and develops teaching technology solutions to enhance and expand outreach services in response to education needs. She has repeatedly published articles in relevant and referred journals such as <i>Transformative Education</i>, <i>Scholar-Practitioner Quarterly</i>, <i>Quarterly Review of Distance Education</i> and <i>International Journal of Self-Direction</i>. She took her Ph.D. in Curriculum and Instruction from the University of South Florida in 2001. She has authored four book chapters on such topics as online instructional design, self-directed learning and creating communities of learning in higher education. Her publications also include papers presented at National Convention of the Association for Educational Communications and the Eighth International Symposium on Human Factors in Organizational Design and Management. She has taught several courses including, “Technology for Adult Education”, “Technology Issues for School Leaders”, “Microcomputers for School Educators” and “Integrative Learning Strategies”, all of which were online or blended. Dr. A has also developed the online components for several courses being converted from face-to-face to online and was a pioneer in the effort to bring synchronous technologies to her university.</p>
B	<p>Dr. B is the Program Director for Distance Education Professional Development Program at the School of Education, University of Wisconsin-Madison. She took her Ph.D. in Curriculum and Instruction from the University of South Florida in 2005. She has published dozens of articles for several referred journals and invited conference proceedings including the <i>Journal of Online Learning and Teaching</i> and the <i>Journal of Interactive Instruction Development</i>, the <i>Proceedings of the Society for Information Technology and Teacher Education International</i>, <i>Society for Applied Learning Technologies (SALT) New Learning Technologies</i> and <i>Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education</i>. She has taught “Distance Learning for Educators” since its online inception and was integral in bringing synchronous technologies to her alma mater.</p>

- C Dr. C is the Director of Media and Technology services for the school district of Osceola County. He took his Ph.D. in Curriculum and Instruction from the University of South Florida in 2006. He has taught courses in “Information Skills”, “Preparing Instructional Media” and “Technological Foundations of Librarianship” for over a decade. He has published several articles for referred journals and invited conference proceedings on the topic of integrating technology and media into the classroom. These journals and conferences include Florida Media Quarterly, Florida Association for Media in Education, and FECT, Media Inc., He has written several professional development manuals and presented them across the state of Florida for the Florida Department of Education.
- D Dr. D is an assistant professor of Science Education at the University of Central Missouri. She took her Ph.D. in Curriculum and Instruction at the University of South Florida in 2003. She teaches several courses including, “Integrating Technology”, “Teaching Strategies in Science Education” and “Computers/Technology in Education”. She has published over a dozen articles in referred journals during the past five years including such journals as, Contemporary Issues in Technology and Teacher Education Journal (online), Journal of Interactive Online Learning and Journal of Educational Technology Systems. Her conference proceedings include such venues as AERA and the International Conference on College Teaching and Learning. She has written several book chapters on the topics of web-based course structured as inquiry, web-based discussions and assessment, and constructivist web-based learning.
- E Dr. E is an Assistant Professor of Math, Science and Technology Education at Nova South Eastern University. She took her Ph.D. in Curriculum and Instruction from the University of South Florida. She teaches courses such as “Technology in the Information Age”, “Business Applications for Microcomputers. She has published in the Quarterly Review of Distance Education, an official journal of the Association of Educational Communications and Technology, Journal of Interactive Online Learning. She is currently co-authoring a textbook on instructional technology.

- F Dr. F is an Associate Professor in the Learning Technologies Division at Georgia State University. He took his Ph.D. in Curriculum and Instruction from the University of South Florida in 2002. He teaches such courses as “Foundations of Instructional Technology”, “Design and Development of Multimedia Education and Training” and “Computer Skills for the Information Age”. He has written dozens of articles in the past five years, published in such journals as Journal of Technology and Teacher Education, International Journal of eLearning, Technology, Pedagogy and Education, Educational Technology and Journal of Computing in Teacher Education. He has presented in venues such as the American Educational Research Association, the Information Technology, Teacher Education International Conference and the National Convention of the Association for Educational Communications and Technology.
- G Dr. G is an Assistant Professor in the College of Education at the University of South Florida. He took his Ph.D. in Educational Media and Computers from Arizona State University. He has published 27 articles in the last 5 years in a variety of peer-reviewed journals including Technological Horizons in Education (T.H.E. Journal), Journal of Educational Technology Systems and The British Journal of Educational Technology. He teaches such courses as, “Problems in Instructional Design for Computers”, “Computer Augmented Instructional Paradigms” and “Geographic Information Systems for Educational Research”. He has published in conference proceedings including the likes of ED-MEDIA: World Conference on Educational Multimedia, Hypermedia & Telecommunications and E-Learn: World Conference on E-Learning in Corporate, Healthcare & Higher Education.
- H Dr. H is a visiting Associate Professor in the Department of Library and Information Studies at the University of North Carolina Greensboro. He took his Ph.D. in Learning and Instructional Technology from the University of Arizona. He teaches the design and production of instructional media, including information graphics and digital video. His research work has appeared in leading journals in the field of instructional technology such as Educational Technology Research & Development as well as Educational Psychology, Contemporary Educational Psychology and the British Journal of Educational Psychology. He has also been a media consultant to the Office of Educational Research and Instruction (U.S. Department of Education).

- I Dr. I is an Assistant Professor of Education and Assessment at James Madison University. She took her Ph.D. in Curriculum and Instruction from the University of South Florida in 2002. Her recent publications include papers in such journals as Educational Media International and Computers in the Schools. She has presented and been included in the proceedings of many conferences including the American Educational Research Association, the National Council on Measurement and Education and the annual international conference of the Society for Information Technology & Teacher Education and GMAC Conference on Computerized Adaptive Testing. She teaches graduate courses in scholarly communications, performance assessment and mixed methods.
- J Dr. J is an Associate Professor of Information Systems and Decision Sciences at the University of South Florida. He took his Ph.D. in Management Information Systems from Harvard in 1991. He has published numerous articles in such journals as Journal of Information Technology in Education, eLearn, Decision Science Journal of Innovative Education and Journal of Information Systems Education. He has presented and been part of proceedings in such conferences as Association for Information Systems and Decision Sciences Institute. He teaches courses in Management Information Systems, Programming and Data Structures, Computer Systems Concepts and The Internet. He has written several book chapters on the topics of information resource management, telecommunications, teaching approaches to programming and effective use of asynchronous discussion boards, a majority of which have been published by Harvard University Press.
- K Dr. K is an instructional designer at the College of Public Health at the University of South Florida. She took her Ph.D. in Distance Learning and Learning Technologies at University of Missouri-Columbia. She has published in journals such as, Journal of Research in Technology on Education. She has presented at conferences and been included in conference proceedings at World Conference on Educational Multimedia, Hypermedia and Telecommunications, International Society for Technology Education and American Educational Researchers Association. She encourages the instructors she designs for to integrate synchronous online sessions into their classes.

L Dr. L is an Associate Professor of Computer Science and Management Information Systems at Albany State University. He took his Ph.D. in Management Information Systems and Public Administration at the University of Georgia. He has published over a dozen articles in The Journal of Computing Sciences in Colleges. The topics of his articles include, pedagogical implications of technology, frameworks for teaching global information systems, immersive visual modeling, object-oriented paradigms and data modeling. His presentations to professional associations include the Society for Community Research and Action, Consortium for Computing Sciences in Colleges and the Decision Sciences Institute Conference. He teaches courses on the subjects of Managing Information Resources, Computer Information Systems, Database Design and Management and Management of Information Systems and Technology.

M Dr. M is an Assistant Professor in the School of Library and Information Science at the University of South Florida. He took his Ph.D. in Instructional Systems (Department of Educational Research) from Florida State University. He has co-authored a textbook on the systematic design of instruction. He has published many articles in journals such as, Academic Exchange Quarterly, Distance and Distributed Education in Library and Information Science and School Library Media Quarterly Online. He has several juried papers at Association for Library and Information Science Education, American Association for Higher Education Assessment and American Association for Information Science. He has taught numerous courses on the topics of information sources and services, organization of knowledge and research methods.

Note: All the above experts include the use of a SWBCS in the courses they teach

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## Appendix I: Sample Interview Transcript (Edited)

Interview 3

Instructor 3

Date: August 13, 2007

Time: 2:30 P.M.

Location: Instructor 3's office, MHC 2423, Florida Mental Health Institute, University of South Florida

SS: Who is the target audience for this course?

Instructor 3: These are students in the Behavioral Health Minor. Let me tell you, these students are going to be practicing in the field they...it's not like it used to be. When I was in [grad] school, you didn't work, you went to school. These students, they all have jobs, they run in and out of here [university classes]. One of my students last year couldn't make it to the final exam because she said she had to work. These students work all the time, they don't make time for school. Well, I want them to have marketable skills, how will what you're doing bring them to marketable skills?

SS: Well, one thing to consider is technological literacy.

Instructor 3: What? What is technology literacy? Why?

SS: Well, increasingly, if not already, those working in the field need to be technological literate, as in computer savvy. It starts with removing a fear or anxiety toward the use of technology, finding new and innovative ways to use technology to make their jobs and those they work with more efficient and effective. The competent use of technology can be a marketable skill.

Instructor 3: These students are going to be social workers, how is technology making them marketable? I'm saying, they have to work with real people. I work with real people. How is this skill, computers, helping them work with people? I didn't have a computer in the field.

SS: Well, technology can open up new avenues for communication, especially the one I want to show you, it allows for communication in real time, over the computer.

Instructor 3: When I was in school and in the field we didn't have computers. These students need to learn what it's really like in the real world. How is what you're talking about helping them?

SS: To tell you the truth, for this study, I am focusing on instructors and the methods they use in the synchronous environment. But if you need a reason to share with their students why they might want to try this and how it will help them, honestly, they like to hear when they don't have to come to class – physically. That's not what this study is about but students really pick up on that reason and are enthusiastic about it. They still have to come to class but not in the traditional sense. That's not exactly what this study is about...students don't generally have a big hang-up about trying this learning environment, they'll try it willingly and pick it up quickly. That won't be a problem. Actually, the instructors are the ones that hesitate.

Instructor 3: These students need to come to class! I know they have to work but they have to come to class too. They're all working.

SS: Ok, well, this may make coming to class more convenient for them and you. But really, what I'm studying is how you, as the instructor, use this tool and what kind of instructional strategies you implement.

Instructor 3: Ok, when should we schedule this then? What should I use it for?

(Sorts through all sorts of papers on his desk and pulls out 2 documents)

SS: Well, it's really up to you when you want to use it and what for. I'm not really here to tell you that. But I think you'll find the use of the SWBCS learning environment beneficial.

Instructor 3: Ok, well, let's look at this syllabus right now then. I'm just doing the syllabus, you caught me at a good time, I hadn't finished the syllabus yet. I know I need to stop putting this off. Ok, here's the research paper I want them to do.

(Hands me a document)

SS: Oh, you mean the rubric for the paper?

Instructor 3: No, rubric, what? No, this is what I want them to do for the research paper. It's a lot, I need to size it down. These students need research skills, I want them to go to the library.

SS: Ok, well it looks like you are incorporating some research skills, using this rubric.

Instructor 3: This is a check-list, if the students just do all the things on this list, that's their research paper. But I want them to pick a topic of their interest. I'm not going to tell them what to pick, but they have to check with me about it. They can go to the library and research their topic. When should we schedule these computer sessions?

SS: Well, what does your schedule look like for this class? Are there a few weeks in which you could meet the students online?

Instructor 3: Meet online? They need to go to the library and pick a research topic.

SS: Ok, they can do that, you can decide when you want to meet online and when they should go to the library. What do you think? Do you see any dates where you could meet online with them?

Instructor 3: I have 4 empty dates, we can meet online then. We need to get those dates in now because I need to finish this syllabus, I should have finished it before now. I have to block out time to finish this.

(opens up his Outlook calendar and blocks off several time slots)

I don't want to have to be working on this on the weekend but it looks like that is what is going to happen, I put this off too long, next semester I'm not going to do this, I'll be ready

SS: Ok, well, we could finish up the dates on your syllabus now if you want to.

Instructor 3: Right, good, ok, let's see,

(We go through numerous combinations of dates and sequences of dates, I write them all down and try to get Instructor 3 to commit to using the SWBCS for 3-4 of them).

SS: Ok, here's what I have (I show him the dates), do you agree these are the dates you want to meet online?

Instructor 3: These are good dates, ok, yes, let's go online those days. Now what are we going to do online those days?

SS: Well, that's really up to you. Let me give you some time to think about that and we'll meet again. We need to get you some practice in the SWBCS anyway. Next time we'll meet online so you can practice.

Instructor 3: Ok, so let's meet next week online. How am I going to know you're online?

SS: I'll send you a web link. We should agree on the time and date now though so I can schedule the online session. When do you have time next week?

Instructor 3: Let me check my schedule...(he checks his Outlook calendar)...oh, this class is starting up soon, we should be sooner rather than later. Where are you going to be when we meet online?

SS: Well, how about we meet one afternoon so you'll be in your office and I'll be in mine. If you need help I can run down and help you.

Instructor 3: We're meeting online?

SS: Yes, on the computer. I'll send you a link, you click on the link and I'll be there to demonstrate the online learning environment tool. When do you want to meet?

Instructor 3: Let's meet next Tuesday @ 2:30, wait, what about 4:30? Do you stay late? What about 4:30?

SS: I can stay, Tuesday at 4:30 is fine, it won't take more than an hour, if that.

Instructor 3: Ok, that's good, I'll try to figure out what the students should do for class. I want you to meet some people, when can you meet them?

SS: Anytime, really, I'm here everyday.

Instructor 3: So you can meet next Friday afternoon too? There's some people I want you to meet that are helping with the class.

SS: Ok, I'll see you next Tuesday and then next Friday too.

Instructor 3: Ok, I'll send you some stuff.

## Appendix J: Sample Field Notes

Field Notes from Interview 3: Instructor 3

Date: August 13, 2007

Time: 4:00 P.M.

Location: My office MHC 2522, Florida Mental Health Institute, University of South  
Florida

Observation	Description
Suspenders?!	I wasn't expecting suspenders, hmm.
He closed the door after I came in and asked me to close it when I left	Why does he keep his door closed? He probably gets distracted, he seems perpetually distracted. Hopping from one thing to the next and back.
Distractions Ask Kathleen	I don't know if this guy is going to work. He's so scatter-brained but he wants to try and I got the impression he wants his students to do well. I'll ask Kathleen why he's so distracted, she knows him.
Target Audience/Students	Who are these students? He didn't really answer the question about who the target audience is. Well, he told me what program they were in and that they were undergraduates. I'll see if I can find out more on Tuesday.
Next Meeting(s)	Tues., August 21, 2007, 4pm Friday, August 24, 2007
Schedule Elluminate Equipment	Schedule elluminate sessions for these dates so we can practice, send him the link, remind him Get him a microphone
Common acquaintance	Anita Peters, Leto HS
Applied Behavioral Analysis	I need to research this philosophy, I don't know much about it. Look it up on TIP
Teaching Experience	His teaching experience seems like it comes from teaching graduate students or from when he was a graduate student. He seems semi-disconnected, stating that his students work too much, they don't know what it's like in the field. He sounds like he wants them to do hardcore research.
Research Paper	This document is horrendous. This looks like a dissertation proposal. I think it's too much. I don't even want the students to suffer through this.  He doesn't know what a rubric is. That's not good. Well, it seems like he has one anyway. It's long, very long.
Doubts	I don't know about this guy. Well, he wants to try. A lot of faculty are "too busy" – at least he wants to try.
His office (instructor 3)	It's messy and old looking. (so is mine). There's a picture of he and his daughter at graduation. Where is the picture of his wife? She's the Dean of the grad school, right? Yes, I met her at the FMHI Christmas party – Diane Buck-Briscoe, yes, that's her.  He has that map of Hillsborough county school district on his wall, circa 1988
Technological skills	He admits his not tech savvy. Well, that's ok, we'll just see what happens.
To find out on Tuesday	More about students, instructional strategies, importance of research paper (grade-wise)

## Appendix K: Detailed Description of Setting

The study took place at a large, urban university with a rating of RU/VH: Research Universities (Very High Research and a Community Engaged university) by the Carnegie Foundation for the Advancement of Teaching. It is the ninth largest university in the nation. This university is accredited by the Southern Association of Colleges and Schools. There are 1,660 full time and 277 part time instructional faculty with terminal degrees. There are also 1,303 adjunct faculty members.

The number of undergraduates is 34,447, followed by 8,338 graduates, 479 doctor of medicine, 1,980 non-degree seeking students. Fifty-nine percent of the student population are women and 13% live on campus. Thirteen percent of the student population is African-American, 13% are Hispanic American, 6% Asian American or Pacific Islander and 0.5% are Native American. One percent of the student population is International, representing 131 countries. The Princeton Review rates this university among the top 20 for diversity among all schools in the United States.

There are 219 programs of study, 89 of which are Bachelor's, 91 Master's degrees, 2 Educational Specialist's, 36 Doctoral and 1 Doctor of Medicine. Pertinent to this research is the course offering breakdown in terms of distance learning courses.

At this university, there are 5 distance learning designations as follows: (1) world wide web (most are accessed through Blackboard – online learning management system), (2) instructional television (received in specially designed classroom, received on all four campuses – same time or tape delayed) (3) telecourse (TV & internet), videoconference

(accessed in multiple locations in “real-time”, students & faculty can see and hear each other), (4) audiocassette (audiotape only), and (5) instructional materials (videotapes, CD-rom, DVD, mp3 and other print-based materials). Currently, there is not a formal designation for blended format courses or courses that are offered synchronously online.

A class schedule search for Fall of 2008 reveals 563 total “distance learning” offerings. When filtered by undergraduate level only, 168 offerings are available. When filtered by graduate level only, 145 offerings are available. There are no filters for distance learning courses that may include both undergraduate and graduate level offerings. Other than searching for “distance learning” courses in general, only the telecourse and web-based distance learning designations are available filter categories. Enrollment figures in distance learning courses are not accurate due to the fact that many distance learning courses are not identified as such in a class schedule search. The fact that courses that enroll both undergraduates and graduates are not searchable makes enrollment figures in distance learning designated courses inaccurate as well. Finally, enrollment figures are measured per campus. Often, a distance learning courses is offered at, “all campuses” so to speak, this complicates enrollment figures also. Even when enrollment figures from all campuses for distance learning courses are tabulated, there is no overall total to compare this tabulation to.



### About the Author

Shelley Stewart grew up in Tampa Florida. She attended the University of South Florida where she graduated with a B.S. in Biology in 1996. Shortly thereafter she returned to her alma mater as a science teacher during which time she completed a Master's degree in Library and Information Science. She became the media specialist at Leto High school upon completion of the degree. After three years she returned to the University of South Florida to pursue a Ph.D. in Instructional Technology.

Shelley likes to swim with her family, spending a lot of time in the Florida sun. She is also a work-out fanatic. She has a passion for Ford Mustangs. Her husband, Derek, is a high school teacher and basketball coach. Her children, Echo (8) and Reign, (6) are full-time Montessori school students but also spend an equal amount of time playing and trying to out-smart their parents!