SOCIAL PRESENCE IN THE WEB-BASED SYNCHRONOUS SECONDARY CLASSROOM

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WEB-BASED SYNCHRONOUS

SECONDARY CLASSROOM

by

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Abstract

The purpose of this study was to explore how social presence manifests itself in the web-based synchronous secondary classroom (WBSSC) and to gain insight into the perspectives of teachers on their role in fostering social presence. Data were gathered using semi-structured and structured observations of recorded web-based synchronous classes, and semi-structured interviews of the teachers who work in synchronous secondary [high-school] classrooms in the province of Newfoundland and Labrador, Canada. Findings revealed that social presence was manifested through affective, expanded affective, cohesive, interactive and audio-sensory categories of a revised instrument for identifying social presence. Social presence manifested itself for students through the use of text-based Direct Messaging and for teachers through use of two-way audio. Students relied on the conventions of communication of informal synchronous chat to manifest social presence. Teachers perceived their role to be models of behaviors that foster social presence, to be willing to use self-disclosure, to help students build communication skills, help foster a sense of group cohesion, to foster a real and engaging classroom experience, and to help students to create an identity. Implications for practice include the need for online teachers to make conscious choices regarding which tools will be used by students and for what purposes.

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1.0 Introduction

Social presence, or "the degree to which participants are able to project themselves affectively within [a] medium" (Garrison,1997, p. 6), impacts student satisfaction and learning (Newberry, 2001). Social presence is also a "significant factor in improving instructional effectiveness" (Tu, 2000, p. 1663). Rourke, Anderson, Garrison, and Archer (2001) indicated that "social presence supports cognitive objectives through its ability to instigate, sustain, and support critical thinking … [and] supports affective objectives by making the group interactions appealing, engaging, and thus intrinsically rewarding" (The Community of Inquiry Model section, ¶ 2). Rovai (2002) found that social presence was a factor in the ability to build and sustain a community, where community is "what people do together, rather than where or through what means they do them" (p. 4). The sense of community is fostered through the establishment of social presence that is predicated on the level of interaction.

Social presence has been shown to be of particular importance in the context of online or web-based learning. Studies completed on the construct of social presence at the post-secondary level have revealed some interesting findings (e.g. Aragon, 2003; Garrison, Cleveland-Innes, & Fung, 2004; Newberry, 2001; Richardson & Swan, 2003; Rourke et al., 2001a; Shin, 2002; Tu, 2000). Key findings indicate that social presence affects student perceived learning (Richardson & Swan, 2003), that it may increase the satisfaction of students' online experience (Newberry, 2001), and it may lead to greater

emotional satisfaction through a sense of well being by raising the level of satisfaction in the classroom environment and improved cognitive skills (Rourke et al., 2001a). A study by Hill (2001) posits that the amount of student interaction, which has been shown to contribute to social presence (Rourke et al., 2001a; Tu, 2000), may also positively impact the drop-out rates of students studying online.

Bibeau (2001) emphasized the importance of social presence in the web-based environment and argued that "teaching and learning functions are inherently social endeavors; therefore, it is beneficial to understand the various effects of geographic, temporal, and psychological distance between instructors and participants" (p. 57). An analysis by Lefoe, Gunn, and Hedburg (2002) was one example of a study in which the effect of geography was considered. The authors sought the perceptions of a group of geographically distributed students taking an art course through web-based means at the University of Wollongong, New South Wales, Australia. The issues identified by the students were related to problems encountered in their first year online. One issue of importance was "the building of a learning community, where all members [felt] they belong[ed] and their contributions [were] valued" (p. 43). Contact with other students was acknowledged as important when the students were situated in isolated groups. Some manner of bridging the geographic isolation was needed in order to create a sense of belonging. The ideal would be to establish a community as described by Shin (2002) where "media users are oblivious of the mediated nature of their communication with others, or with the media" (p. 125). The level of social presence influences the sense of

community and belonging, which affects the level of isolation felt by the students, and "as social presence goes down so does the sense of community" (Rovai 2002, p. 8).

The importance of social presence in the web-based classroom is well recognized, as is the role of the teacher in promoting its establishment in the classroom. Social presence and the establishment of a sense of community in the web-based classroom are mediated in part by the teacher. Salmon (2000) noted that the teacher plays a role in the ultimate success of the course through the development of online interaction which can lead to a feeling of inclusion by the student. The teacher can create the conditions by which a learner-teacher bond, or connection is established. Holt, Kleiber, Swenson, Rees, and Milton (1998) stated that the teacher's responsibilities extended to "creating the environment … and creating a community" (p. 48). Munroe (as cited in Shin, 2002) argued that in a web-based classroom, students must sense the bond between themselves and the teacher, that "education involves a relationship, not just the transmission of information" (p. 122). Because social presence is tied to interaction, the teacher can influence the level by creating an interactive environment that promotes inclusion which will affect the learner-teacher relationship.

The concept of social presence in the web-based classroom may be an important one, but it is not one that is easily understood. Picciano (2002) found that the idea of presence could vary from person to person, and essentially it is a perceived notion. Because of that, it is "a complex subject for research" (p. 24). Furthermore, although the literature dealing with social presence is extensive, the bulk of research appears to focus on online learning at the post-secondary level. Yet, as Sadik (2003) noted, "research is

required to investigate approaches for designing and implementation of online learning for younger learners" (p. 8). Downs and Moller (1999) also indicated the "need for additional investigation of … student socialization for secondary school students" (Future Research Section, ¶ 1), where secondary refers specifically to students at the high school level.

Rourke et al., (2001a) attempted to make social presence an easier construct to study by developing an instrument (see Appendix A) for assessing social presence in asynchronous computer mediated conferencing. The instrument was applied through content analysis of transcripts from two graduate level courses. The authors identified three categories of response related to social presence: affective or the expression of emotion; interactive which were responses that indicate interpersonal connection; and cohesive which were group-building responses. Twelve indicators related to emotion, interaction and cohesion were identified from these categories which specify the occurrence of each category in the transcripts. These responses could be used to gauge and reflect social presence in an online context.

The instrument for assessing social presence created by Rourke et al. (2001a) has promise in that it could potentially support the investigation of social presence in web-based synchronous secondary classrooms (WBSSC). However, the instrument has thus far only been tested in a post-secondary context of online learning. Furthermore, it has only been used to support the content analysis of transcripts of asynchronous computer conferences. Its usefulness and value in a context of secondary web-based classroom interaction that includes both synchronous and asynchronous components has yet to be

determined. In addition, Rourke et al. (2001a) identified problems with the instrument in that it "applies equal weighting to each of the 12 indicators of social presence. It is likely that further research will reveal that each of the indicators defines social presence differentially" (Discussion Section, ¶ 4). For these reasons, in their concluding comments the authors "invite others to further develop and verify the indicators" (Conclusion section, ¶ 2).

The purpose of this study was to investigate how social presence manifests itself in the web-based synchronous secondary classroom (WBSSC) and to gain insight into the perspectives of teachers on their role in fostering social presence. The purpose was achieved through a case study of social presence in a context of web-based learning in secondary (high school) classrooms in the province of Newfoundland and Labrador, Canada. Data were gathered using semi-structured and structured observations of recorded web-based synchronous classes, and semi-structured interviews of the teachers who work in synchronous secondary [high-school] classrooms in the province of Newfoundland and Labrador, Canada. The observations and interviews were guided by a revised version of the instrument created by Rourke et al. (2001a) for identifying and measuring social presence in an online context. The instrument was revised (see Table 2.2.1, page 24) in the context of the present study by the addition of another category and its indicators. The revised instrument is designed for use in a context of web-based synchronous learning at the secondary level.

The remainder of this chapter will clarify some of the problems associated with the identification of social presence, as well as defining social presence as a construct.

The research questions which will guide this study will be introduced, as will the significance and limitations of the study. The chapter will conclude with a description of the context of the study.

1.1 Statement of the Problem

Teaching in the web-based asynchronous classroom differs from the face-to-face classroom and "is influenced by the absence of the non-verbal communication that occurs in the face-to-face settings of conventional education" (Anderson et al., 2001, p. 14). Stacey (2002), in her analysis of two post-secondary online group environments, indicated that the online classroom contains few contextual clues in the form of verbal and non-verbal interaction, to key participants on feelings, emotions, or a general sense of the mood of the room. There are few clues as to whether understanding is indicated in the face of the student because the faces are not visible. In face-to-face classrooms, a glance can transmit a wealth of information. The web-based asynchronous classroom was described as being "a depersonalized medium" (p. 288). Stacey cited research that found with "unconstrained interaction time" (p. 288) the depersonalized feeling could be overcome through the appropriate transfer of language. An atmosphere of inclusion and a "presence" can be established with "the posting of supportive comments and sharing of personal anecdotes and information provid[ing] a network of social interaction" (p. 289). Stacey suggested that the teacher needed to be proactive in developing a socially responsive discourse, especially in the early stages of the course to help students establish social presence which could help to overcome the limitations presented with the lack of verbal/non-verbal and contextual language.

Overcoming the limitations of a depersonalized medium requires the establishment of an environment through which connections and interaction can be established. This environment can be fostered with the development of social presence, which has been cited as an important factor in web-based classrooms. Downs and Moller (1999) indicated the need for additional research in the online K-12 student population in order to "understand how distance learning impacts its participants and classroom community" (The Use of Distance Section, ¶ 4). One impact of distance learning cited by Litke (1998) was the feeling of isolation experienced by the participants, which is the polar opposite of social presence. This occurred where the students were unable to project themselves into the medium in the web-based classroom. He found that isolation and lack of teacher contact were factors mentioned by the students as being detractors of success in the environment. Aragon's (2003) work focused on online environments in general and he confirmed that a sense of isolation stems quite naturally from being at a distance. Students who are new to the web-based classroom may find it an intimidating experience. As Aragon pointed out, this may stem from not knowing the rules, the protocols, or the language of the medium. The degree of contact and interaction, both of which raise the level of social presence, are vital to preventing the feelings of isolation and aloneness that may develop in the web-based classroom.

Creating an environment that loosely parallels a face-to-face classroom might be a solution to overcoming the limitations of the impersonal web-based medium. Rovai (2002) indicated that a sense of community is an accepted phenomenon in the traditional face-to-face classroom. He noted that the social atmosphere of a room could promote a

level of interaction, acceptance, discussion, discord, harmony, discourse, and a strong sense of inclusion. Some studies have shown that this sense of community is also important in the web-based classroom (e.g. Buckingham, 2003; Hill, 2001). Rovai (2002) indicated that a sense of community is setting specific, and that the environment will dictate how the sense of community grows. It is difficult to establish a sense of interaction or social presence in the web-based classroom because of the less personal nature of the type of communication. He posited that "educators who perceive the value of social bonds in the learning process must re-conceptualize how a sense of community can be stimulated in virtual classrooms" (p. 3).

Traditional face-to-face classrooms have been recognized as being effective when supporting a level of interaction and community. In a face-to-face classroom, an effective learning environment is considered to be a productive learning environment. Barker and Wendel (2001) examined the indicators for effective conventional and online schools and found that "learning management processes and practices include: approaches to learning that … support interaction and the development of learning communities" (p. 33). Two of the criticisms leveled by virtual school students, when polled about their level of satisfaction with the web-based classroom was "they would like to see more teacher responsiveness to student inquiries … [and] getting to know their teachers and other students to build relationships" (p. 79). The study indicated that one of the barriers to success in the move from face-to-face to a web-based classroom was the lack of interaction and teacher contact, two important elements necessary for the development of social presence. In the author's examination of the web-based classroom, students who

did not experience success indicated "they may not have had the amount of direct teacher contact that many wanted and were accustomed to having within the context of a conventional school" (p. 124). Contact and the development of community have been shown to be two important elements of traditional face-to-face schools. Rovai (2002) cited the key finding of Welage, Rutter, and Smith (1989) who indicated that "effective schools provide students with a supportive community" (p. 2). The implication to web-based learning at the secondary level lies in the need to establish social presence which is associated with community. This is an important construct to a successful and effective web-based classroom, as well as to the students who populate that classroom.

The role of social presence in creating the sense of community discussed by Rovai (2002) cannot be overstated. Garrison and Anderson (2003) noted that social presence plays a pivotal role in the establishment of what they term a community of inquiry. The authors describe the community as being hinged around three key elements. These are cognitive presence, social presence, and teaching presence. All of these intersect to provide the total educational experience for the learner, and overlap to create the environment conducive to what the authors describe as supporting discourse and ensuring that the climate is appropriate for this interaction and discourse to exist. The authors argue that social presence "is essential in a collaborative learning experience and is a necessary precondition to establishing native presence" (p. 79).

Attention should be paid to the manner and the media through which the social bonds are created, if the teacher is to affect the level of social presence and promote the establishment of a feeling of community. One barrier which could inhibit the degree of

social presence might be the type of media used to present content to a student (Shin, 2002). Short, Williams, and Christie (as cited in Richardson & Swan, 2003) argued that social presence "varies among different media, it affects the nature of the interaction and it interacts with the purpose of the interaction to influence the medium chosen by the individual who wishes to communicate" (p. 70). If the media don't support a level of social presence, the "users avoid interactions requiring a higher sense of social presence in media which lack such capacity" (Richardson & Swan, 2003, p. 70). Media that are viewed by the student as being rich in social presence are more likely to be chosen for use than those media which are viewed as being low. This is not always the case, as was shown in a study by McPherson and Nunes (2004) where a Virtual Social Space was created for student use, the intent being to help develop social contact among students. This space contained social calendars, chat rooms, and other interactive spaces designed to allow students a high level of social interaction. The authors reported a low use of the space citing the "use of established methods of communication" (p. 318) such as e-mail as the primary reason for non-use.

Studies have indicated that social presence is difficult to assess, or even difficult to define as a construct. Few models exists which elaborate the criteria that should be present in a web-based classroom to determine the level of social presence. Rourke et al. (2001a) have devised an instrument with three categories and 12 indicators of each category (see Appendix A) to help identify social presence These elements have been used as benchmarks in several studies (e.g. Newberry, 2001; Richardson & Swan, 2003; Shin, 2002) to identify social presence. Rourke et al. proposed that "the relative presence

of the 12 indicators reveals the level of social presence" (Coding section, ¶ 1). Therefore, the frequency of the occurrence of an indicator can give a sense of the level of social presence. However, the authors confined their study to the analysis of asynchronous text-based communications in an online discussion forum at the post-secondary level. Consequently, we do not know if these indicators might be useful for identifying social presence in the synchronous, web-based secondary classroom.

The purpose of this study was to investigate how social presence manifests itself in the web-based synchronous secondary classroom (WBSSC) and to gain insight into the perspectives of teachers on their role in fostering social presence. This study was guided by the following research questions:

1. How does social presence manifest itself in the context of the web-based synchronous secondary classroom?

2. What is the teacher's role in promoting social presence in the web-based synchronous secondary classroom?

The purpose was achieved through a case study of social presence in a context of web-based learning in secondary (high school) classrooms in the province of Newfoundland and Labrador, Canada. Data were gathered using semi-structured and structured observations of recorded web-based synchronous classes, and semi-structured interviews of the teachers who work in synchronous secondary [high-school] classrooms in the province of Newfoundland and Labrador, Canada. The observations and interviews were guided by a revised version of the instrument created by Rourke et al. (2001a) for identifying and measuring social presence in an online context. The instrument was

revised (see Table 2.2.1, page 24) in the context of the present study by the addition of another category and its indicators. The revised instrument is designed for use in a context of web-based synchronous learning at the secondary level.

1.2 Significance of the Study

The findings from this study may be used to inform the practice of those who teach in the web-based synchronous secondary classroom on how to better promote and foster social presence. Findings may also support teachers in examining and evaluating their own pedagogical beliefs and to reflect on possible ways of modifying their practices to maximize students' social presence in the web-based synchronous secondary classroom. Universities offering teacher-training programs may benefit from this study by identifying possible pedagogical practices for pre-service teachers who plan on instructing students in the web-based secondary synchronous classroom. It is anticipated that the findings will inform and provide a basis for the professional development of web-based teachers. The findings presented in this study will also add to the current body of knowledge on the construct of social presence in the web-based secondary classroom.

1.3 Limitations of the Study

The study focuses only on the secondary web-based classroom and not on the post-secondary level. The secondary level includes grades 10, 11 and 12. The study will focus on one specific case that is in a context of web-based delivery of the high school curriculum in the province of Newfoundland and Labrador. This study will only focus on the construct of social presence and not on broader issues such as interaction or

community. This is an exploratory and descriptive, qualitative case study. The goal is not to measure or quantify social presence. The only measure of social presence that this study will rely on is the revised instrument which includes the categories and indicators from Rourke et al.'s (2001a) study, and the categories and indicators identified from the literature.

1.4 Context of the Study

Distance education is delivered to approximately 97 rural K-12 and senior high schools in the province of Newfoundland and Labrador, Canada (see Appendix B) through web-based means with approximately 900 students registered. There are 1385 course registrations with some students taking as many as five courses online. There are 30 courses directly administered using the WebCT™ course management system for content delivery and Elluminate *Live*™ as the synchronous delivery component. The Centre for Distance Learning and Innovation (CDLI) is responsible for the operation of the distance education program in Newfoundland and Labrador, Canada. The administration of CDLI is divided among four persons with one government level director, one acting principal who is responsible for personnel and program delivery, and one person responsible for program development, and an individual responsible for technology planning, implementation, and the acquisition of technology. There are 26.5 teaching units allocated which includes a guidance person. One teacher works half time with CDLI teaching music education and half time at a school site. The teachers are placed in districts across the province, but only on the island portion. There is one coordinator who is responsible for the day to day operations, equipment procurement,

technical expertise, and the professional development of teachers. There is an extensive staff of content developers responsible for the creation and maintenance of content on the web. There is also a network administrator who is responsible for the deployment of programs and services to the teachers and students.

Web-based courses are delivered online, but the students who participate are located in their own school in their own community. CDLI does not exist as a school, only in the sense of providing the courses as an adjunct to the regular course offerings of the local schools. CDLI is not a virtual school, even though it loosely fits Barker, Wendel, and Richmond's (1999) definition which is "one that offers the mandated provincial instructional program to students through web- based means (i.e., computer-mediated and online via the internet). This type of school is characterized by a structured learning environment under the direct supervision of a teacher, web-based delivery to home or in a setting other than that of the teacher, and contains instruction that may be synchronous or asynchronous"(p. 2). CDLI could be more closely related to virtual schooling that is "an optional enhancement to a school's regular, face-to-face programming for access and choice purposes. Virtual schooling takes place at all levels (e.g. college, university, adult education, elementary, and secondary)" (p. 3).

1.5 Overview of the Study

The next chapter will provide the conceptual framework that guided the study and the rationale for the revision of Rourke et al.'s (2001a) instrument. Chapter three will present a review of literature pertinent to social presence. This will be followed in chapter four by a detailed description of the methodology used in the study. The presentation of

the findings will be described in chapter five, and the study will conclude in chapter six with a discussion of the findings, conclusions made from the analysis of the findings, and suggestions for future research.

1.6 Summary

The purpose of this study was to investigate how social presence manifests itself in the web-based synchronous secondary classroom (WBSSC) and to gain insight into the perspectives of teachers on their role in fostering social presence. The purpose was achieved through a case study of social presence in a context of web-based learning in secondary (high school) classrooms in the province of Newfoundland and Labrador, Canada. Data were gathered using semi-structured and structured observations of recorded web-based synchronous classes, and semi-structured interviews of the teachers who work in synchronous secondary [high-school] classrooms in the province of Newfoundland and Labrador, Canada. The observations and interviews were guided by a revised version of the instrument created by Rourke et al. (2001a) for identifying and measuring social presence in an online context. The instrument was revised (see Table 2.2.1, page 24) in the context of the present study by the addition of another category and its indicators. The revised instrument is designed for use in a context of web-based synchronous learning at the secondary level.

This chapter examined the purpose of this study and provided insight and clarification into the importance of social presence. An instrument that elaborated some of the indicators of social presence was introduced. Some of the problems associated with the identification of social presence, as well as difficulties in defining social presence as a

construct were discussed. The chapter also discussed the significance of this study to web-based secondary classrooms. The chapter focused on some of the work completed in the area of social presence at the post-secondary level and presented some of the findings of researchers in this area. The limitations of the study, as well as the context of the study were elaborated on. The research questions which formed the basis of the study were introduced.

Studies on social presence have indicated that it is a significant construct in the web-based synchronous classroom, affecting student dropout rates, perceived learning, community, the sense of connection with the classroom, with the content, and with those who work within that classroom with the student. Social presence was identified as a "connection", was differentiated from associated constructs such as tele-presence, interaction, and shown to be an integral factor in establishing a learning community. An instrument for the assessment of social presence based on the work of Rourke et al. (2001a) was discussed as were the limitations of the instrument with respect to the analysis of social presence in the secondary, web-based classroom. Two research questions were identified which were investigated in this study. This study was conducted in Newfoundland and Labrador using a case study analysis of a group of students and teachers who are teaching and learning in web-based synchronous secondary classes.

Chapter Two

Conceptual Framework and Description of Instrument

2.0 Introduction

The purpose of this chapter is to present a conceptual framework on social presence that guided the study in the analysis of the construct in a context of the web-based synchronous secondary classroom (WBSSC). Rourke et al. (2001a) created an instrument to assess social presence in a text-based asynchronous environment which included three categories and 12 indicators. This study built on that instrument to include categories and indicators identified from the literature, in addition to those identified by Rourke et al. (2001a), which may be used to assess social presence in the context of a WBSSC. The basis for the selection of these categories and indicators will be provided. The chapter is divided into two sections with an elaboration of the conceptual framework which guided the investigation of social presence presented first, followed by a description of the instrument.

2.1 Conceptual Framework

Picciano (2002) noted that social presence is a complex concept. Study of this construct requires a suitable framework based on studies that have been conducted on indicators of the construct as well as a preliminary definition of the construct. This study will be guided and informed by the theoretical perspective of social presence theory, as well as the work of Rourke et al. (2001a) on indicators of social presence and the Community of Inquiry Model.

Rourke et al (2001a) posited that the term "social presence" extended from Mehrabian's (1969) concept of immediacy that was defined by "those communication behaviors that enhance closeness to and nonverbal interaction with another" (p. 203). Immediacy occurred when face-to-face communication took place and was evidenced by body language, eye contact, and other nonverbal cues, and was a way of extending oneself into the social fabric. The lack of face-to-face interaction in the web-based classroom, the reliance on textual hints for cues, and "the inability of [text-based] media to transmit nonverbal cues" (Short, Williams, & Christie, in Rourke et al., 2001a, Social Presence Section, ¶ 2), led to the creation of the term "social presence" when referring to immediacy in mediated communication.

The perception of connectedness or immediacy can be elaborated in terms of a psychological context. Shin (2002) described presence as "a distance student's perceptions of psychological presence on the part of teachers, peers, and institutions" (p. 121), a construct labeled "transactional presence". Shin (2002) noted that transactional presence can be defined in terms of two factors, that of tele-presence which refers simply to the awareness of the geographic location of the student, and social presence which refers to the "connectedness [and] refers to the belief that a reciprocal relationship exists between two or more parties" (p. 123). Lombard and Ditton (in Shin, 2001) provided six conceptualizations of presence:

> presence as social richness, [meaning] the degree to which media are
> capable of making users perceive other users .. in a mediated
> communication situation; presence as realism, [meaning] techniques that

make non-existent things, people, or events … feel as if they are 'real' when they are perceived through media; presence as transportation, [which implies] perceptions can transcend the boundaries of their realities [the users feel as if they are there]; presence as immersion, [indicating] technical devices attached to communication media [to make] users feel that they 'exist' physically, psychologically, and perceptually, in a different world; presence as social actor, [meaning to] respond, compliment, or experience anger toward characters [virtual]; presence as medium as social actor [which] involves people's social responsiveness toward a medium itself. (p. 124)

The user becomes oblivious to the medium being used and is immersed or connected with the other users as if they are in a 'real' situation.

Rourke et al. (2001a) viewed social presence as one of three key components; social, cognitive, and teaching presence, of the educational experience of a participant. Being able to establish or give the perception of a presence in a web-based classroom has been identified as important. The Community of Inquiry Model defined the "teaching and learning transaction that capitalizes on the ease and abundance of interaction that is possible with media" (The Community of Inquiry Model section, ¶ 1). The authors saw social presence as being essential to "support[ing] the cognitive and affective objectives of learning" (The Community of Inquiry Model section, ¶ 2). Without the ability to extend one's self into the medium or engage in a community, the participant cannot develop the role identity of "online learner" (Garrison et al., 2004).

A distinction needs to be made between interaction and social presence because they are not the same (Picciano, 2002). Rovai (2002) indicated that interaction might be task driven or socio-emotional in nature, the former being "the completion of assigned tasks while [the latter] is directed toward relationships among learners" (p. 5). O'Reilly and Newton (2002) defined interaction as an interaction with content as well as interaction with others. Interaction can indicate a level of social presence but doesn't necessarily mean that presence has been established. As Picciano (2002) showed, "it is possible for a student to interact by posting a message on an electronic bulletin board while not necessarily feeling that she or he is a part of a group or a class" (p. 22). It is necessary then, to note the difference between the terms and to be consistent in their use. Social presence is defined as a feeling of connectedness with the web-based learning classroom for this study and with the associated participants in that classroom.

2.2 Description of the Instrument

Social presence has been evaluated in the context of post-secondary, asynchronous text-based courses using an instrument designed by Rourke et al. (2001a). The instrument was developed to evaluate social presence under the conceptual framework of the Community of Inquiry described by Garrison and Anderson (2003) but "is intended to be applied to improving the practice of computer conferencing in higher education" (Garrison, Anderson, & Archer, 2001, p. 8). Other instruments have been developed for the evaluation of social presence at the post-secondary level in the context of discussion forums (Hew & Cheung, 2003), for student interaction and sense of presence (Picciano, 2002; Tu & McIsaac, 2002), social presence and perceived learning

(Richardson & Swan, 2003), and the level of collaboration in online asynchronous discussion (Murphy, 2004).

The instrument developed by Rourke et al. (2001a) (see Appendix A) consisted of three categories that were "communicative responses that contribute to social presence" (Content Analysis section, ¶ 5). These categories were 1) the affective or emotional category, 2) the interactive category which indicated interchanges between actors, and 3) the cohesive which were considered to be group-building responses. These categories were further broken down by Rourke et al. to include a set of indicators that specified the existence or occurrence of the category. However, other categories were added to this instrument by the researcher in this study to further support the assessment of social presence in the WBSSC. The next section details the rationale for these additions to Rourke et al.'s (2001) instrument.

Lombard and Ditton (as cited in Shin, 2001) referenced six conceptualizations of social presence, some of which should be included in the revised instrument for assessing social presence. The authors included presence as medium as social actor, as a conceptualization of social presence which was related to the social responsiveness of a student toward the medium where the medium took on characteristics that invoked a response from the user. This conceptualization of social presence could be categorized as social responsiveness and the indicators might present themselves through observations that answer the questions:

1. Were students behaving as if the room was real?

2. Did the room transcend the media?

3. Were the students oblivious to the media?

Lombard and Ditton included presence as realism, a construct that included "techniques that make non-existent things, people, or events … feel as if they are 'real' when they are perceived through media" (p. 124). The category "media realism" is therefore included in the revised instrument, indicators of which could be noted through observations that answered the questions:

1. Did the tools contribute to the level of social presence?

2. Were responses and reactions to the media seamless in that they were directed at other users with no indication of media involvement?

Picciano (2002) indicated that interaction might be task-driven or socio-emotional in nature. This provided the basis for the addition of a third category to the revised instrument called mechanical/expressive interactivity. Typing a message could be interactive vis-à-vis an answer to a defined question, which might be mechanical and emotionless, but was still considered interacting. In a similar vein, copying and pasting verbatim answers as a response to questions from a teacher or student was interacting but, again, was mechanical. Mechanical interaction, although interactive, would not be considered to be a manifestation of social presence which is defined by affective presence. Inclusion of mechanical or expressive interactivity as a category might provide a gauge of social presence in the WBSSC.

Rourke et al. (2001a) cited text-based emoticons as indicators of the affective category. However, they did not include other indicators of emotion such as colour, fonts, and graphical emoticons. Communication in the Elluminate *Live*™ environment can be

supported using the four, built-in, colored emoticons which are graphical in nature instead of text-based like those described by Rourke et al. The presence of color indicates mood: black – angry or mad, green – envious. The graphical elements can be used in conjunction with the features of the whiteboard (WB). The WB supports colored graphics and text, the ability to alter/change font style of text, and capability for pitch or text sizing changes, all of which can be indicators of mood. The existence of these features in Elluminate *Live*™ provides a rationale for the addition of indicators in the expanded affective category in the revised instrument.

Because Rourke et al. were working with a text-based environment, they did not have audio or sound capability. Elluminate *Live*™ is equipped with a two-way voice component so the revised instrument therefore includes the addition of a fifth category: audio-sensory. Audio-sensory is associated with the emotional characteristics of voice delivery. Indicators such as tone, volume, intensity, timbre, can all be used to indicate the nature of a message or mood of the person speaking, eg. serious, upbeat, humorous, angry.

Table 2.2.1 presents the revised instrument which includes the categories and indicators in Rourke et al.'s instrument as well as those were identified in the preceding paragraphs. The revised instrument differs from that described by Rourke et al. in that it took into consideration some of the parameters which might exist in the WBSSC, but not exist in a strictly text-based environment such as that illustrated by Rourke et al. in their study. Examples of each additional indicator were added by the author of this study.

Table 2.2.1: Revised instrument for assessing social presence.

Category	Indicator	Example
Affective	Expression of Emotion	"ARRRGGGHHHH!!"
	Use of Humor	\<student sings to class\>
	Self-disclosure	"I am so confused"
*Expanded Affective	Use of Color	Evil grin!!
	Use of Font	**I HATE this!!**
	Use of emoticons	;-() , ;-(, :-)
Cohesive	Vocatives	"Susan, you are correct"
	uses inclusive pronouns.	"Our class thinks …"
	Phatics, salutations	"Peace out people"
Interactive	Continuing a thread	Picks up from others' discussion
	Quoting from other's messages	"Jamie stated …"
	Referring explicitly to other's messages.	"That's what Andrea's said"
	Asking questions	"Did anyone answer all questions?"
	Complimenting	"That's wonderful Brandi!"
	Expressing agreement	"You really nailed that one"
*Audio-Sensory	Voice Level/intensity	Soft – medium - loud
	Tone of Voice	Edgy, humorous, angry
*Social Responsiveness	Responds to medium as being "real"	"You stupid machine!!"
*Media Realism	People/things perceived as being real when perceived through media.	Sir, your voice sounds funny.
*Mechanical Interactivity	Cut/Paste verbatim answers	"Osmosis is defined as …"
	Simple yes / no answers	The answer is yes.
*Expressive interactivity	Addresses specific individuals	"Mr. Jones, I think that …"

* asterisk denotes categories added . All other categories from Rourke et al. (2001a).

2.3 Summary

This chapter provided a conceptual framework that was used to guide the study, and a description of the instrument used in data collection, as well as a rationale behind the creation of the instrument. A review of literature examined how the construct of social presence stemmed from, and was grounded in, Mehrabian's (1969) concept of immediacy. The importance of social presence as a psychological factor in establishing a feeling of connectedness between teachers, peers, and institutions was discussed in some detail, as was the importance in allowing students to develop their role as online learners. A distinction was made between the constructs of interaction and social presence. Lastly, the revised instrument was presented and a rationale given for the addition by the researcher of five new categories and indicators for evaluating social presence in the WBSSC. The purpose of the next chapter is to review studies that are similar to what was done in this research and that had a similar purpose. The chapter addresses issues that have been identified as influencing social presence, and identify social presence in specific contexts of teaching and learning.

Chapter Three

Literature Review

3.0 Introduction

The concept of social presence is one that has been extensively researched at the post-secondary level, as have the related concepts of interaction, and community. Although studied in the context of course delivery in higher education, the concepts may be transferable to the secondary level and can serve as the basis for reference for this study. Ten studies will be reviewed related to social presence, the relationship between interaction and social presence, and the influence of social presence on the establishment of community. However, with the exception of two studies, very little of the literature deals specifically with or pertains to the WBSSC.

This chapter will begin with a review of several studies that focus on the construct of social presence and its importance in the learning environment. What follows is an examination of literature that looks at the impact interaction and the establishment of community has on social presence. Lastly, a section will provide the expected contribution of this study to the existing literature on social presence.

3.1 Social Presence and the Learning Environment

Rourke, Anderson, Garrison, and Archer (2001) conducted a study in which they examined the extent of social presence established in a text-based, asynchronous, computer mediated conferencing (CMC) environment used to deliver courses at the University of Alberta, Canada. The purpose of their study was to analyze an instrument

containing 12 indicators of social presence for reliability and effectiveness. The authors also developed the construct of social presence through the analysis of coded transcripts, looking for the existence of three responses in the text: affective or expressions of emotion, interactive or evidence that interpersonal connections were being formed, and cohesive responses which were data that indicated an acknowledgement of group.

The authors used content analysis or the "systematic and replicable examination of symbols of communication" (Riffe, Lacy, and Fico, as cited in Rourke et al., 2001a, Content Analysis of Social Presence, ¶ 2) to analyze selected transcripts from two graduate level courses at the University of Alberta, in Canada. Fourteen participants from course one, including an instructor, two student moderators, and 11 students, participated in section one of the study. Seventeen participants from course two, including an instructor, two student moderators, and 14 students, participated in section two of the study. The groups participated in week long discussions through asynchronous messaging, which yielded 90 postings from group one and 44 messages from group two. Student moderators led the discussion in both groups, and the instructor passively monitored the process. Selections were compiled, coded, and analyzed using the software AtlasTi™.

The chief findings of the study indicate that the instrument proposed by Rourke et al. (2001a) is useful in assessing the level of social presence in a web-based asynchronous classroom. The instruments were used to generate an aggregate social presence density rating, which the authors concluded, "suggests that the template is able to expose and quantify important differences in social presence" (Rourke et al., 2001a,

Discussion, ¶ 2). The authors did note that the study weighted each of the 12 indicators evenly, but that some indicators may define social presence differently. The authors also posited that some indicators need to be assessed on a continuum rather than implicitly to gauge the relative level or strength. The authors suggested that further studies needed to be undertaken to "triangulate participant perception of social presence and its value" (Rourke et al., 2001a, Conclusion section, ¶ 2).

Richardson and Swan (2003) examined the effect that perception of social presence had on student satisfaction with the course and instructor. The purpose of the study was to explore the role social presence played in online environments. The authors sought to determine how students' perception of social presence in online courses were related to their perceived learning and satisfaction with the instructor; whether the students' perceptions were a predictor of their perceived learning; how gender, age, and number of college credits earned were related to students' perceptions of social presence; whether course activities perceived by students as having a high level of social presence also have a high level of perceived learning. The participants were students who had completed online learning courses through Empire State College in the spring of 2000. The sample was 97 students between 36 and 45 years of age, with 63% female and 47% male. Ninety-seven of 369 students returned the survey for a 26% response rate.

The major findings of Richardson and Swan's (2003) study showed that students who perceived a high degree of social presence also felt that they learned more than those students who perceived a low level of social presence. Students who scored high in social presence indicators expressed high satisfaction with their instructor. Neither age nor

number of college credits accounted for any variability in overall perception of social presence. Students who perceived a high degree of social presence in group projects also perceived a high degree of learning with the project. The social presence of the instructor and other students was perceived as "an integral aspect of their educational experience" (p. 76). Student perception of social presence at the secondary level may affect their satisfaction with the course, their perceived satisfaction with their peers and instructor, and may influence their overall performance in the course. The authors' recommendations for future research were for studies to be undertaken which observe and interview students and instructors, and analyze online documents, to determine the factors which constitute positive social presence behaviors.

Stacey (2002) examined social presence as an element in facilitating effective online learning, and studied the teacher's role in helping students to project their online social presence, as well as the teacher's role in establishing an environment for learning. The qualitative study used electronic data gathering to analyze the online interaction of 20 students in an online Masters of Business Administration Program in Australia. The students were geographically dispersed over a wide range of locations. The group was composed of 21 males and 10 females. The analysis framework for the study was based on the same set of social presence categories developed by Rourke et al. (2001a) for defining social presence in a mediated communication medium.

Findings indicated that the teacher played an important role in helping students establish social presence by modeling acceptable social presence factors in the first week of classes. The study also indicated that establishing small group collaborative

environments was conducive to establishing social presence because the students could develop relationships in a more informal setting. The findings of the study indicated that social presence was maintained at a high level over the weeks. These findings are not congruent with those of Rourke et al. (2001a) who posited that social presence drops off as the course proceeds. Stacey's (2002) work provides an example of the use of the categories identified by Rourke et al. (2001a) for defining the level of social presence in a web-based asynchronous classroom. Stacey's (2002) study also established social presence as "an important aspect for effective online interaction and learning" (p. 293), and underscored the importance of teacher presence in the web-based classroom.

3.2 The Impact of Interaction on Social Presence

A study by O'Reilly and Newton (2002) examined the impact of a student centered social learning environment on a group of social science students at Southern Cross University, Australia. An action learning methodology was used to evaluate the course design of a web-based program. The participants were undergraduates from courses that were fully online and at a distance, completing online units as part of a course requirement, or internally enrolled with online access. Two online surveys were given in semester two of 2000 and semester of 2001. Twenty-nine of 49 students registered with the School of Social and Workplace Development (SaWD) responded in semester one, with 72% of the respondents over the age of 25, and 76% of the students female. The second survey was distributed online to a wider population of students, including those enrolled online, external with online access, and internally enrolled with online access. The response rate for the second survey was 61 students, representing 10%

of all students accessing SaWD online. 83% of students were mature, 73% were female, 67% were rural students, and 79% were inexperienced online learners.

The study examined the level of interaction experienced using the asynchronous tools, as well as the development of social support networks through the use of the tools. One significant finding concerned the need to "overcome a sense of isolation" (How Students Value Interaction section, ¶ 2) for those who were studying externally. The students expressed the desire and need to become part of a group, to help motivate them, get them on track, and provide a level of support. This type of interaction fits the socio-emotional model defined by Rovai (2002) where the student seeks to develop a relationship with other learners. O'Reilly and Newton (2002) iterated the need for peer-to-peer interaction which builds connections to others, noting "the emphasis placed by students on peer-to-peer interaction" (Interaction section, ¶ 1), a construct which fits Rovai's (2002) socio-emotional model and one which can enhance social presence.

Murphy and Coffin (2003) completed a study of synchronous communication tools used to support a WBSSC French course whose students were widely dispersed over a wide geographic area of the province of Newfoundland and Labrador. The purpose of the study was to describe interaction in terms of four distinct types: student-teacher, student-student, student-content, and student-teacher-tools, using observation to learn about the affordances and constraints of the synchronous tools, then describe the interactions taking place and determine how the interactions related to the affordances and constraints. Insight was sought into how the users were interacting with one another and the tools. Data were collected using six class observations in a synchronous

classroom environment using an earlier version of Elluminate *Live*™ called V-Class™. Three small group interviews with students in the course using direct messaging tools and the audio component of the V-Class™ environment, and two interviews with the teacher using the same synchronous component were undertaken.

The major finding of the study was that specific synchronous tools have affordances that allow the user to interact with the teacher, with the whole class, and with the tools themselves. Constraints in the two-way communication tool affected the ability to provide one-to-one interaction, a limitation the authors felt would impact the ability to promote a more student-centered learning environment. The researchers noted that the limitations in the tools could be minimized through the creative use of the affordances of other available tools. The authors noted that the onus of maximizing the affordances would most likely fall on the teacher due to the age of the learners. Maximizing the capabilities of the tools would happen through specific pedagogical choices and effective use of the available tools.

Murphy and Coffin's (2003) work examined the restriction of interaction through web-based tools, an effect that might impact the development of social presence in a web-based classroom. O'Reilly and Newton's (2002) study indicated that the higher the level of interaction, the higher the degree of perceived social presence. If the tools constrain interaction, and are not managed effectively by the teacher to minimize this constraint, student perception of social presence could be low, an effect which may impact student success, retention, and the overall feeling of inclusion in an online community.

A study by Frank, Reich, and Humphreys (2003) examined the technological and social dimensions of a computerized learning environment involving a group of 11 and 12 year old students. The purpose of the study was to examine the challenges faced by the students when participating in a course exclusively through asynchronous delivery by e-mail. Twenty-five students aged 11 and 12 years old, from middle class families, with an established set of basic computer skills, were invited to participate in the course. The students were given face-to-face orientation to the technical details, course goals, evaluations, and were provided the opportunity to familiarize themselves with one another. Over the life of the study, several face-to-face sessions took place but most of the course activity occurred through e-mail contact. Data were collected through interviews with students and parents, observations, and questionnaires, as well as portfolios produced by the students.

The major findings of the study revealed six themes:

- students' anxiety over using the technology,

- technical difficulties,

- the level of parent involvement in the process,

- suitability of distance delivery to the course,

- interrelationships between the students, and the student – teacher as well as isolation issues, and

- the level of enthusiasm for the process by the students

The lack of relationships between the students and the teacher was cited in the interviews as being a major problem. Personal contact became an issue because students

felt lonely and isolated. This feeling might have been compounded by the virtual teachers' visit to the students. Initially, the researchers had intended for the teachers to interact completely through virtual means. However, the teachers took it upon themselves to visit the students' home, becoming "a living, breathing and familiar person" (p. 65). The students might have felt a greater sense of loneliness in the virtual classroom after making face-to-face contact. The major conclusion from the study was that students felt a level of isolation and anxiety that requires personal contact to resolve. Frank et al.'s (2003) study emphasizes the need for interaction and a feeling of social connection in the web-based environment. Their study examined the use of asynchronous tools in the context of junior high, which has implications for work done in the K-12 area.

A study by Thompson (1990) examined the attitudes of 48 students who were negatively disposed toward distance education, the purpose of which was to identify perceived disadvantages as well as student suggestions for program improvement. A total of 423 students from first year evening courses were surveyed and 319 surveys were returned. Seventy-nine respondents were selected from the returned surveys based on a negative disposition towards correspondence courses. Fourty-eight of these agreed to be interviewed about their negative feelings. The students interviewed were asked to identify aspects of distance study that they felt were disadvantageous, as well as identify ways in which this type of study could be improved. The findings of the study indicated insufficient interaction with the teacher as one major disadvantage associated with distance study. Thompson's (1990) study acquired data approximately 15 years prior to today but still has significance because it indicates an attitude that was prevalent in

distance studies which, according to recent literature, is still common. The delivery method has changed but the implication is clear that interaction with the teacher is an important factor in student satisfaction with distance education.

3.3 Establishing Community

Garrison, Cleveland-Innes, and Fung (2004) implemented a study that examined the role adjustment of students new to an online setting. The purpose was to validate an instrument to study role adjustment. The authors also identified the elements and conditions associated with role adjustment in an online Community of Inquiry, the conceptual model of which was defined by Garrison et al. (2004). The authors constructed an instrument based on 28 indicators which reflected the three elements of the community of inquiry: social presence, cognitive presence, and teaching presence. Sixty-five participants from two graduate programs of Athabasca University in Alberta, Canada were selected to complete two forms of a questionnaire, one that measured anticipated personal adjustment to online learning as compared to face-to-face, and the second, anticipated personal adjustment to online learning compared to their perceived activities of experienced online learners. The students were unknown to one another and not part of a cohort, nor did they participate in online courses with other students over time. Some students took part in weekly conferencing in their online course, while others participated in conferencing five times weekly. Twenty-five students were selected to pilot the questionnaire, none of whom were in the research sample. These students provided feedback on issues of syntax, word usage, and the coverage of activities.

The major findings of this study indicated there must be a shift in the mindset or a role adjustment of a student to transition successfully from face-to-face to a web-based learning environment. The authors noted "for an online learning experience to reach its educational potential, a learning community must be established and sustained" (p. 62). To properly adjust, a student must be capable of engagement in this community of inquiry. The analysis of the findings of the questionnaire comparing face-to-face learning transitioning to online learning identified the factors of social presence and teacher presence as being the focus of priority over cognitive presence. The ability to assess role adjustment would be beneficial as an evaluation tool for screening students. An inability to establish social presence would imply that the student is incapable of adjusting their role to the web-based classroom, and their ability to fit into the community of inquiry would be diminished. Garrison et al. (2004) noted in their results that "the three factors of the community of inquiry are seen to be overlapping [and] ... do not exist in isolation from the other elements in an educational experience" (p. 66).

Annand and Haughey (1997) studied the experiences of six instructors who taught using computer conferencing. The purpose of the study was to explore these experiences for indicators of how the instructors perceive the computer conferencing process and the relationship to themselves and their students. A naturalistic enquiry method was used to explore the instructors' experiences. Data were gathered from examination of instructor generated transcripts of messages, field notes and a diary, and unstructured interviews. The six participants, four men and two women, taught computer mediated communication (CMC) based graduate courses. The educational backgrounds of the

instructors were in the field of psychology, sociology, adult education, and organizational behavior. Data from the transcripts were analyzed into themes and questions generated for the interviews from the themes. Gaps were identified from the instructor interviews and questions were formulated for a second round of interviews. Data gathered from field notes and a diary helped to formulate the experiences of the instructors. The findings revealed that the instructors varied philosophies of learning, recognition levels of student learning styles, and preferred pedagogical strategies all contributed to their practices.

The study by Hill (2001) examined the strategies and techniques that were successful for community-building in a web-based learning environment. The purpose of the study was to explore best practices for community building, and to examine strategies and techniques designed to facilitate the creation of an online community. An embedded case study design was employed because of the variety of evidence being gathered from multiple sources, in this case, students, faculty members, and design experts. Surveys, questionnaires, interviews, observations, and content analysis of transcripts were used to collect data. There were three experts and 22 student participants who were involved in an Instructional Design course at a university in Georgia. Themes and patterns were identified in the data and an explicit list of techniques and strategies for community building were generated. The study took place over a 12 month period from January to December of 2000.

The chief findings of the study were the generation of a list of nine techniques used to build community. These were:

☐ Establish a "failure safe" space in which to work and communicate

☐ Assist the learner with establishing structural dependence

☐ Encourage an atmosphere of adventure

☐ Assist the learner with establishing strategies for managing their time

☐ Encourage the learner to set priorities regarding reading messages

☐ Remind the learner that someone is out there

☐ Establish a well organized structure to facilitate efficient interaction

☐ Provide the learner with multiple means of access

☐ Work to minimize technology glitches and provide training for how to cope with them

Interestingly, interaction and the idea that someone is out there, two key elements of social presence, were listed. Central to these findings were the conclusion of the author that "community building takes time and effort" (Conclusion section, ¶ 1) and the creation of a community is conducive to social presence.

3.4 Contribution of This Study

Under the community of inquiry model proposed by Garrison and Anderson (2003), the role of social presence is defined and shown as being instrumental in "support[ing] the cognitive and affective objectives of learning" (Rourke et al., 2001a, The Community of Inquiry Model section, ¶ 2). Richardson and Swan (2003) also noted the impact of social presence on student satisfaction with the course, the teacher, and their perceived level of learning. With the increase in web-based high school course offerings being delivered through asynchronous means, a need exists for the evaluation of

the levels of social presence in this type of classroom. With the exception of two studies reviewed in this chapter, the research focused on social presence in the post-secondary asynchronous environment. The research did not examine how social presence was manifested in a web-based synchronous, secondary classroom. This study will examine social presence in such a context.

The tools of the learning environment have been cited as factors which constrain interaction (Murphy & Coffin, 2003), affect social presence, and influence the success of the student, and increase the anxiety levels of students (Frank, Reich, & Humphreys, 2003) which can lead to reduced interaction and feelings of isolation. This study will observe the interactions of students and teachers with the tools of the WBSSC, noting how the use of the tools might contribute to the manifestation of social presence.

3.5 Summary

This chapter provided a review of the literature that was carried out on social presence, the construct of interaction, and community. The literature presented in this chapter examined tools that could be used to analyze the level of social presence in a web-based course. The effect that social presence has on student satisfaction and how it is related to the level of teacher-student interaction was discussed. The chapter identified how interaction and social presence are inter-related, how feelings of isolation can be overcome by personal contact and the development of social connection, and how interaction may be enhanced or restricted by the tools used in the web-based course. The chapter concluded with examples of studies that examined how the preferences and pedagogy of the teacher can affect the level of social presence and interaction in a web-

based classroom were reviewed. Few of the studies presented were carried out in the WBSSC. However, the studies contained findings relative to the establishment of social presence in the web-based classroom, as well as the identification of key elements related to social presence that can be key indicators of the existence of social presence.

The next chapter will provide an outline and explanation of the methods employed in this research study. A description of the participants, their location and selection, data collection, and data analysis will be presented.

Chapter Four

Methodology

4.0 Introduction

This chapter details how the study was conducted and the data collected and analyzed. An overview of the method used in the study, and the types of data collection techniques is presented. An account of participants and the selection process by which they were chosen for participation is provided. The context of the observations is given including a detailed description of the tools of the Elluminate *Live*™ web-based environment. The procedure for data analysis concludes the chapter.

4.1 Overview of Methods

The study relied on a descriptive, single case design approach as described by Tellis (1997) and Yin (2003). The approach was taken in response to the uniqueness of the group presented for study in this instance and the appropriateness of the group. Yin (2003) noted the criteria of uniqueness and appropriateness as rationale for undertaking a case study design where the "objective is to capture the circumstances and conditions of an everyday or commonplace situation" (p. 41). Case study analysis involves "research in which in-depth data are gathered relative to a single individual, program, or event, for the purpose of learning more about an unknown or poorly understood situation" (Leedy & Ormrod, 2001, p. 114).

Data collection techniques included observations and interviews. This use of multiple sources supports what Yin (2003) refers to as converging lines of inquiry. It

makes "any finding or conclusion in a case study ... likely to be much more convincing and accurate if it is based on several different sources of information" (p. 98). Modes of data collection were selected based on the work of Tellis (1997), and the suggestions of Yin (1994), who proposed six sources from which data could be collected in a case study, two of which included observation and interviews. Data collection included:

1.   Semi-structured observations of recorded synchronous classes.

2.   Structured observations of recorded synchronous classes using the revised instrument.

3.   Semi-structured interviews with the teachers, using the revised instrument.

The next sections outline the details of participant demographics, data collection techniques, selection and recruitment, and how the analysis of the data was conducted.

4.2 Description of Participants and Course Offerings

Qualitative researchers "must make a wide range of sampling decisions, even with one case ... [because] there may be, for example, samples of actors, settings, events, time periods, and processes" (Miles & Huberman, 1984, p. 25). Lincoln and Guba (1985) suggested that the most useful sampling strategy is maximum variation. Hoepfl (1997) indicated that this was a strategy that "aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation" (p. 52). The population presented through CDLI is indicative of such a variation and the selection of recorded sessions for observation, as well as the teachers selected for interview reflected this variation.

This study relied on purposeful sampling of pre-recorded synchronous web-based secondary classes that were representative of the course subject areas, grade levels, teaching experience, teacher and student experience in WBSSC, the medium used, and geographic distribution of all participants. Six participants were recruited from a list of 26 teachers who instruct 29 courses offered through CDLI, with representation in the social sciences, science, art, music, technology, and mathematics areas. Twenty-six are regular course offerings and three are in the pilot stage. Course offerings at the senior high level in Newfoundland and Labrador are divided into three levels: level 1, level 2, and level 3. Appendix D shows a breakdown of the subject areas offered by CDLI by course. The courses are taught by teachers who have certification for teaching in Newfoundland and Labrador, and are considered experts in their respective teaching areas. The level of teaching experience ranges from seven to 30 years and there is variation in the level of experience teaching web-based secondary education (give range here).

Characteristics other than course variety were reflected in the sample. Several factors that might impact social presence in the WBSSC have been identified from the literature. Rovai (2002) commented on the teacher's perceived value of social bonds as being important to the establishment of social presence in the classroom, a perception that may develop over time and with teaching experience. Aragon (2003) suggested that students who are new to web-based learning might find it an intimidating prospect. The student populations attending classes through CDLI vary in age, and in their experience with the WBSSC, and are dispersed over a wide geographic area. Geographic distribution was noted in a study by Bibeau (2001) as being one consideration when examining social

presence because of the relationship to isolation. He explored the relationship of interaction between student and teacher, and the role that social presence plays on isolation and connectedness. Interaction has been shown to contribute to developing social presence (Rourke et al., 2001). And lastly, Shin (2002) cited the type of media as impacting the level of social presence. Research at the post-secondary level has been predominantly, if not exclusively, associated with asynchronous web-based delivery of courses which involve a medium different than that used in the sample for this study which involves synchronous delivery. The participants and courses represented in this study reflected these factors.

There are only five courses taught which are indicated as level one. The inclusion of a cross section of these courses raised the probability of including students who are new to the web-based classroom experience, although the students' experience with web-based courses was not evaluated in this study. History 1201, Art 1201, and Math 1204 provided a sample of students new to web-based-learning; teachers with low, medium, and high levels of web-based teaching experience; teachers who are in the early, mid, and late stages of their careers; and gave a cross section of subject areas. Chemistry 2202 and English 3201 were included, which provided a complete sample of course subject areas, involved two mid-career and one late career teachers, and sampled students who have two to three years web-based course experience. These samples included participants and students that were geographically distributed around the province of Newfoundland and Labrador.

The 26 teachers were contacted via e-mail and their participation in this study requested. A letter of informed consent accompanied the request to the teachers that outlined the intended research. A contact address, phone number, and e-mail address, as well as the contact information of the thesis supervisor, was provided in order to facilitate any questions or concerns associated with the study. Teachers interested in participating were asked to return a signed copy of the signature page to the researcher through e-mail. In the event that participants refused participation, a second set of letters was issued to invite participation from teachers with similar qualifications and course characteristics. All districts were contacted and a letter of consent was sent to obtain permission to use recorded classes involving students from those districts. The district director of education was asked to return a signed copy of the letter of consent. All participating schools were contacted once permission was received from the districts to proceed. A letter of consent was sent and the principal asked to return a signed copy to the researcher. Once all participants had been recruited and consent forms returned, observations began.

4.3 Description of the Context of the Observations

A brief overview of the Elluminate *Live*™ environment is necessary in order to get an understanding of how the observations were conducted using the instrument. Of particular note are three areas that may be used by the student and teacher to communicate with one another. Appendix C shows the standard view seen by the teacher. The student's view is similar but limited to tools that are activated based on permissions from the teacher. The researcher observed graphic and text-based data on the whiteboard

(WB), the direct messaging area which is text-based, and monitored any conversations which occurred through the use of the two-way audio component. The revised instrument highlights categories and indicators of social presence, the occurrence of which were noted, if present, during a synchronous session. For example the affective category is associated with the indicator "use of humor", which may be observed in conversation as a comment from a student, as a text-based comment in direct messaging, or as a graphic or text presented in the whiteboard. Observations focused on, but were not be limited to, these tools.

4.4 Data Collection

4.4.1 Observations

Observation was used because it "can lead to deeper understandings than interviews alone, because it provides a knowledge of the context in which events occur, and may enable the researcher to see things that participants themselves are not aware of, or that they are unwilling to discuss" (Patten, as cited in Hoepfl, 1997, Observations section, ¶ 1).

The observation was of 12 archived synchronous online classes recorded using Elluminate *Live™*. Six recordings were selected from early in the school year; September-October, 2004, and six were selected from April of 2005. The six recordings represented a cross section of subject areas offered in the WBSSC, a diverse set of teaching experiences, and courses from the three levels of schooling (level I, II, and III) in the high school system in Newfoundland and Labrador, Canada. Each recorded session was observed twice, and evidence of the existence of social presence was noted.

The first set of observations was semi-structured. Semi-structured observation is the planned watching and recording of behaviors as they occur within a controlled environment, but with sufficient flexibility to be able to watch for and record other issues as they arise. Field notes were created based on these semi-structured observations in order to "record details, strive for accuracy ... [and] to visualize the moment, the person, the setting, the day" (Glesne, 1999, p. 50).

Subsequent observations were structured and used the revised instrument to identify instances and occurrences of social presence. Specific occurrences of each indicator were noted and supporting evidence recorded in the form of detailed descriptions of the event and quotations from the actors where applicable. The notes were combined with the detailed observations from the semi-structured observations to provide a holistic account of what was happening in the WBSSC.

4.4.2 Interviews

Seidman (1991) found that the meanings people associate with their experience affects how they conduct that experience. Providing the environment for teachers to comment on their experiences and perceived role in the classroom generated data that could then be compared to what was observed to be happening in the WBSSC. Interviews, in this case, functioned as a source of triangulation. Yin (2003) determined that this type of focused interview could allow the researcher to corroborate facts already established from other phases of data collection. The interviews provided a level of confidence for the researcher "that the conclusions drawn are warranted from the data collected" (Leedy & Ormrod, 2001, p. 105). As Glesne (1999) stated, "observations [*sic*]

puts you on the trail of understandings that you infer from what you see, but you cannot, except through interviewing, get the actor's explanations" (p. 69).

Online semi-structured interviews were conducted to gain insight into the teachers' perspective on their role in promoting and fostering social presence in the WBSSC. The interview phase lasted 1 week and took approximately 1 ½ hours per participant. There are a number of advantages as well as some disadvantages to online interviews. Crichton and Kinash (2003) reported on the power of the internet for interactive interviewing in ethnography, citing several strengths which included "the absence of visual, bodily cues … [that] allows participants to stay oriented to the other's intentions, [and] there are no nods, frowns, or yawns to discourage or distract, and misread nonverbal cues that result in second-guessing the expectations of the 'other'" (Conclusion section, ¶ 2). The authors also noted that the ability of online interviews to maintain spontaneity of conversation between the interviewer and participant. The limitations of this type of interview cited by the authors included a type of disengagement of the participant, or the sense of "not being in the interview experience [and] limited means for emotional or empathetic communication" (Conclusions section, ¶ 2).

The revised instrument was provided to the participants on screen during the interviews, and the teachers were asked to comment on the categories and indicators. They were guided by the following two questions;

1. What role, if any, does the indicator play in the promotion of social presence in the web-based synchronous secondary classroom?

2. What is your role in promoting the indicator?

The teachers were encouraged to freely discuss and comment on what they thought were significant events and examples highlighting social presence without limiting their comments to the indicators and the instrument.

Once the data were gathered from the interviews, transcribed copies were generated and a summary of themes, topics, and comments was sent back to the respondents for review and validation. The summaries allowed all participants to verify the contents of the interview discussion and provide member checking of data sources, to get feedback from the informants who provided the original data (Guba, 1981).

4.5 Data Analysis

The data set consisted of approximately nine pages of transcribed interviews for each teacher. The data from the semi-structured observations consisted of twenty-six pages of field notes. The data from the structured observations consisted of twelve pages containing the categories, indicators from each category, and columns for coding each indicator, number of instances of each indicator observed, and an example of that occurrence.

Once all data had been collected, extraneous material was discarded. Miles and Huberman (1984) refer to this as data reduction, one which is "not something separate from analysis ... [but] part of analysis that sharpens, sorts, focuses, discards, and organizes data" (p. 24). This reduction allowed the researcher to eliminate from the transcribed interviews, field notes and structured observations, any material not directly related to the study's purpose. The data from both the interviews and the observations were subsequently grouped into the categories corresponding to the instrument. Patterns

were identified within and between categories through detailed and repeated reading of text.

4.6 Summary

This chapter detailed how the study was conducted and the data collected and analyzed. An overview and rationale of the method used in the study were stated, and the types of data collection techniques presented. An account of participants and the selection process by which they were chosen for participation was provided. A brief description of CDLI and the courses offered through the group were discussed in some detail. A description of the context of the observations was provided to give a clearer picture of the web-based synchronous secondary classroom (WBSSC). This included a detailed description of the tools of the Elluminate *Live*™ web-based environment. The procedure for data analysis concluded the chapter.

The next chapter will present the findings of this study.

Chapter Five

Presentation of the Findings

5.0 Introduction

The purpose of this chapter is to present the findings of the semi-structured and structured observations completed on the recorded web-based synchronous sessions. The chapter also includes findings from the semi-structured interviews completed with the teachers who taught the sessions. The goal of the observations was to describe and provide examples of how social presence manifested itself in the context of a web-based synchronous secondary classroom (WBSSC). The purpose of the interviews was to obtain the teachers' perspectives on their role in promoting and fostering social presence. The interviews also provided an avenue for triangulation of the data obtained from the semi-structured and structured observations.

The findings will be presented in two sections, with the data from the observations presented first, and the interviews second. The data will be presented with reference to the two research questions posed in chapter 1:

1. How does social presence manifest itself in the context of the web-based synchronous secondary classroom?

2. What is the perceived role of the teacher in promoting social presence in the web-based synchronous secondary classroom?

The categories which correspond to each of the indicators listed in the revised instrument will be used to organize the findings in the first section. Section two will be comprised of the commentary and perspectives of teachers about the categories and indicators, and

their role in promoting them in the WBSSC. The findings of mechanical and expressive interaction categories are provided under a single heading. Each category is broken down into its respective list of indicators and specific examples of each indicator are provided from the interview and observation data.

The names of the (how many) teachers have been replaced with a pseudonym to give a human dimension to the person, while protecting the identity of the participant. These teachers are: List them here.Students are referred to using the bracketed word "student" and a number, e.g. [student 1], to designate the order in which they speak.

5.1 Findings from Semi-structured and Structured Observations

5.1.1 Affective category

The affective category deals with emotional presence, which derives from "the expression of emotion, feelings, and mood" (Rourke et al., 2001, Affective Responses section, ¶ 1). Rourke, et al (2001), have sub-divided this category to include three types of indicators, specifically:

- ☐ expression of emotion,
- ☐ use of humor, and
- ☐ self-disclosure.

Expression of emotion was observed in the context of student responses to the teacher, teacher responses to students, student interaction with content, and student-to-student interaction. In one class, students were required to view works of art on the whiteboard (WB) during an Elluminate *Live*™ session. Daniel explained that Van Gogh

was criticized heavily for his artwork and that derogatory comments were made about him. This statement evoked an expression of sympathy from a student who wrote in direct messaging (DM): "thats [*sic*] mean. Lol [laugh out loud]." A similar exchange took place when a collage showing pictures of small children was shown on the WB. A student reacted in DM with a short sentence to convey an emotional reaction: "Awww sweet."

Students' responses to on-screen images were accompanied by expressions of emotion. In viewing a painting on screen, one student wrote in DM: "Woah" and "Thats [*sic*] awesome." A student conveyed a sense of mock fright at the photo of an individual on the WB: "I'm afraid of him lol." A student suggested embarrassment when he realized that he had given an incorrect answer: "min..oops." A student responded in DM to an announcement by Thomas that a test was impending: "noooooooo test!!!!!!! *whines *." A second student messaged "not fair!" Students expressed satisfaction with the software used in a course: "I hate music ace," "I LOEV [*sic*] this song," "wicked song man." Confusion about a topic was expressed with: "I am very confused." Students expressed emotion in DM using abbreviated words, single word responses, and stretched text. Examples are: "cool," "omg" or "OMG" (oh my god) to indicate shock or amazement, "oooooh" and "Reeally pretty." Letters were repeated to stretch the word. The large font size of the text indicated shouting.

Heather gave details to a solution for a problem being discussed. She then used the two-way audio component to check the level of student satisfaction with her response: "[Student 1]? You a bit happier now [Student 1]?" Alex expressed anger and

frustration through the use of an idiomatic phrase in the two-way audio. His voice increased in loudness as it was iterated: "Oh boys, oh boys, oh BOYS, OH BOYS! This is not … not good enough!" Percy also expressed frustration with the tools of Elluminate *Live*™: "Sorry [about] going through all these screens. Drive you nuts!" Alex showed affection through the use of vernacular: "Sorry my love."

Humor during student-to-student and student-to-teacher interaction was noted. Thomas commented that a specific student had neglected to send in a survey. The student noted the oversight with levity: "D'oh! Forgot that!" to which a second student responded: "Ha Ha ha great job [Student name] lol." Interactions within groups of students contained evidence of humorous exchanges. In one such example, students were discussing how a writer could speak if he was dead: "if he died a year ago how could he be saying that … how could he say this if he was dead … last time I checked ya [*sic*] can't talk when your [*sic*] 6 feet under … hahahahaahah funny."

On one occasion, students had not passed in their assignments. Thomas stated: "They are going to die!" to which the students responded: "owch." The same teacher announced a test and students responded negatively in the DM: "noooooooooooo!" The teacher laughed while making an apology using the two-way audio component: "Speaking of workload, you have a test. Sorry. Sorry. Sorry to be dumping on ya [*sic*]." The students responded in DM with: [Student 1:] "Oh God", [Student 2]: "noooooooo test!!!!!!!!!! *whines*." Thomas disclosed the location of a section that might be on the test while discussing an aspect of the test. The students responded with the hand clapping emoticon to which he replied: "Thank you, thank you! No applause, just throw money."

When separate, breakout rooms were created by Thomas, they were called, "The Cage and The Other Cage." A student reacted to the names with: "the cage and the 'other' cage he he he that's funny." Another student jumped in with "yes. It is. I laugh at it."

Daniel expressed humour during the course of content delivery. He referenced a project, which involved the use of glue: "Don't go chewing on the glue sticks. That's not good either." When giving instructions for locating materials for the same project he joked: "Please don't go to the school library or take yer [*sic*] friends' books and chop them up." The next example shows a response by the same teacher to a student's answer to a question. A student replied that she saw a sheep's head in an image to which the teacher responded: "I'd suggest the milk you had with your cereal this morning, the best before date was off."

Students used self-deprecation to make light of mistakes or performance issues. A student acknowledged not having submitted his best work with the comment: "I did a bad job at it though. I rock." In a DM response, a student commented about making a silly statement: [Student 1]: "hahahahahaha… I'm so immature… lol." Other students supported her laughter by joining in: [Student 2]: "haha no i found it funny too lol … so ur [*sic*] not alone." Another student joined in: [Student 3]: "lol we are all immature … lol…yes, yes we are …" Two teachers used self-deprecating comments to make light of their shortcomings. Examples of this were found in comments made to the students through the two-way audio: "if you can read my writing," and in DM: "ahhhhh, I love this album I have bought 3 copies of it. Lost all 3 :(."

Teachers were observed using self-disclosure. The expectations of the teacher were often revealed in what they stated about his/her personality. Comments such as: "I am very picky," "I love it when people question things alright? It is very important if you don't understand something, I need to know," and "I love it when people ask questions. Very, very important."

Thomas made a comment that gave insight into his personal interests: "I would love to take art classes." He expressed a passion for music when he related the story of playing with a reggae band in Jamaica to the students. Alex told the students of his sports' affiliations: "I'm a blue man. Maple Leafs fan right?" A student related his past history to the online experience: "I took music when I was living in [town name]. That was fun!   :-p."

5.1.2 Cohesive category

The cohesive category relates to group-building responses, which occur in the WBSSC. This category manifests itself through three indicators:

☐ the use of vocatives which is referring to a person by name,

☐ the use of inclusive pronouns such as we, us, our, we're, and,

☐ the use of phatics or salutations which is greetings and chit-chat that is not curriculum or work related.

Teachers greeted students by name when they entered the classroom and when they conducted social conversation with the students: "Glad to have you aboard Julia!" and "Welcome Nola." They addressed students by name during the delivery of curriculum and in question and answer sessions: "Well Brandi, here's the deal." Names

were used to direct flattering or courteous comments to the students. Examples include: "Way to go Eric," "Thanks Elaine," "You're right Danita," "As Danita suggested," and "Good question Nancy." Other instances occurred when expressing concern over a student's comprehension of a topic: "Danita, you a bit happier now Danita?" When the student asked a question, the teacher responded using the student's first name.

The web-based synchronous classes could be recorded for viewing and were kept in an archive for retrieval. During a session being recorded for an absent student, Daniel referred specifically to the student by name, speaking as if the student was actually there in the classroom: "So for Mark, very quickly. These are the things that get covered in the lesson ... make sure that you've read 1.2 ... you're going to need this web address right here..." When the student viewed the recording, he was greeted with the teacher's comments that were addressed specifically to him, as if he had been present on the day of the class.

Teachers relied on the two-way audio to direct comments to students that included inclusive pronouns. Teacher comments directed at students included the use of: "we're," "we," "us," "our," and "you guys" as in: "we'll have a go at that," "wouldn't we? We would find." Teachers promoted inclusion by addressing groups with the name of the town that the students were from: "Ok, King's Point, what do you ...," and by speaking to the group as a whole: "Hi everyone, what are ya [*sic*] at?" or "hello everybody! What are you guys doing today?" Students used inclusive pronouns in the DM to question the teacher: "What are we to draw?"

5.1.3 Interactive category

The interactive category refers to the interactions that "build and sustain relationships, express a willingness to maintain and prolong contact, and tacitly indicate personal support" (Rourke et al., 1991, Interactive Responses section, ¶ 1). There were six indicators that were applied to the two-way audio and direct messaging interactions in the WBSSC:

☐ Continuing a thread

☐ Quoting from others' messages

☐ Referring explicitly to others' messages

☐ Asking questions

☐ Complimenting, and

☐ Expressing agreement

Heather expanded on a student's idea using the two-way audio. The student continued a thread established in direct messaging. Heather noted the student's solution to a problem with a response to the class using the two-way audio: "You're right Danita. As Danita suggested…"

Students referenced other students' messages using DM. An example was a conversation between two students, where the first had posed a general question concerning confusion over the location of an assignment, and a second student replied: [Student 1]: "Can I put my music profile in my blog instead of email?" [Student 2]: "Where is that to…:-S," [Student 1]: "Its [sic] lesson 2 in unit 1." Another example showed an exchange about a piece of software that students were using in class: [1st

student]: "i [*sic*] hate music ace. It makes me want to commit suicide." [2nd student]: "Music Ace rocks." [3rd student]: "I hate music ace." In a third sample, a student responded to another student's comments about a graphic: [1st student]: "hahahaha." [2nd student]: "ihahahahhha." [3rd student]: "lol we are all immature." [4th student]: "lol…yes, yes we are…"

Student messages in DM were sometimes directed specifically to, but not responded to, by the teachers. A student who had viewed a graphic on the WB questioned a numerical value that had been shown in the graphic: "What number was in the 60?" This question was directed specifically to the teacher. The student repeated the question in DM a few minutes later and received a reply from the teacher.

Thomas encouraged students to compliment, appreciate and acknowledge other's work. One message given to the students implored:

And listen … I like to see this a lot. If you are working on the board and a
student does a good job, and you understand that they've presented
themselves very well, give them a hands-up [*sic*] like I am doing there.
That goes a long ways [*sic*] to… fer, fer [*sic*] people's attitudes you know.

Student-to-teacher and student-to-student questioning was evidenced in the 12 sets of observations. The interactions were social and curriculum-based in nature. Students asked for clarification from the teacher on assigned work: "How do we look at the recordings?" "What did you say we had to do?" "What we have [*sic*] to draw?" "What are we listening to?" and "Do we put lesson 2 in our blog or do we mail it to you?" Teacher questioning occurred consistently throughout most of the recorded

sessions for the purpose of clarification of a point or to elicit understanding of some concept by students: "Do you guys agree that this is a pretty simple test?", "School of rock. Which scene?", and "Can somebody tell me the formula for circumference?" Examples of student-to-student questioning were observed in the context of social interaction, problems with hardware/software, and curriculum based interaction: "Whoa, did anyone find it hard to get on today?" and "Is it me or has our class shrunk a LOT since the last past [*sic*] few weeks," were posed to the class, in general, on login. Students messaged one another concerning activities that were happening in Elluminate *Live*™: "What are we listening to." A student messages the group about a perceived problem she has with the software: "I am trying to listen to Launch but I can't cuz [*sic*] theres [*sic*] like … something else playing."

Examples of teacher-to-student and student-to-student complimenting were apparent. Teachers used the two-way audio to compliment student responses to questions: "You've got it [student 1]. For 50 extra marks in the course!" or, "Way to go [student 2]!" and "Great, great. Excellent! There ya [*sic*] go! [Student 3] got the right answer!" There were encouraging and complimentary remarks made to the class as a whole: "You guys are above average," and "Bingo, excellent yeah!"

Students used short sentences to praise the work of others, and abbreviated words and emoticons to indicate appreciation. Examples of short sentences are found in one brief DM conversation: [1st student]: "Cool," [2nd student]: "yeah," [3rd student]:"very creative." [2nd student]: "sweet." Samples of emoticon based expression include: "c001" [numbers represented letters and spelled a word], or "it rox [it rocks], :-)" indicating a

smiling face, and ";-D" indicating winking in agreement. Examples of individual words comprise: "yup!~," "yep," "yip," "uh-huh," and "yea," all of which mean yes, and "ME TOO" where the capitals stressed the level of agreement as strong. Students expressed emoticons as combinations of characters and letters, which created a graphic. These included: ":), :-), ;-), :-D," all of which illustrate agreement.

Students articulated agreement/disagreement in the classrooms using the three emoticons provided with the Elluminate *Live*™ environment: a yellow happy face which blinks, a set of hands clapping which blinks, and a thumbs down symbol which blinks. Alex asked specific questions and then asked the class to use the emoticons to express agreement/disagreement: "Give me a smiley face if you guys are alright with that so far …" and "Let me see them [*sic*] faces. Let me see if they're puzzled or not."

5.1.4 Mechanical and expressive interactivity categories

Mechanical interactivity refers to the process of placing cut-and-paste text from curriculum content into the DM area. It also takes place when students respond, or give yes or no answers, to questions. The text is curriculum-related and contains no socio-emotional content. DM that reveals an emotional content, or reveals the personality of the person giving the message, is synonymous with expressive interactivity.

Students used mechanical messaging in the context of providing succinct answers to questions asked by the teacher and questions discussed in class. Teachers requested the answers in the mechanical form of yes/no responses, or as verbatim results taken from web-based curriculum content. Examples included: "As energy is lost, top, potential energy decreases." When the formula for the circumference of a circle is requested: "2

pie r." In response to the question: "What number do you see?" the answer was provided as: "sixty." Teacher responses were sometimes given as short, to the point, answers. A student asked if specific content would be on a test and the teacher replied: "Yes, this will be on the test."

Expressive interactivity manifested itself in teacher-to-student and student-to-student conversations. Thomas asked his students to provide suggestions of a date for an upcoming assignment. A student responded with: "how [*sic*] about 10th of never?" to which a second student responded: "he he he good date there [student name]." There was also indication of emotion in a student reply to a question posed by Thomas: [student name]: "um their hair lol j/k [just kidding] um I donno[*sic*]." Daniel asked about a graphic posted on the WB and a two-word response was given: "Reeeally pretty!" and in response to a second graphic, three words: "Woah [*sic*], thats awsome [*sic*]." Alex expressed excitement about teaching a course to the students: "I am looking forward to this actually! I am looking forward to this course!" Percy exhibited an apologetic tone when material is deleted from the WB: "Oh gosh. Sorry about that!"

5.1.5 Audio-sensory category

The audio-sensory category has to do with the qualities of the two-way audio in Elluminate *Live*™. Indicators such as tone, volume, intensity and timbre, may imply the nature of a message, e.g. serious, upbeat, humorous, or angry. These may be expressed through level or intensity, tone, and use of emotion.

Examples of the use of the two-way audio revealed a relaxed, flowing, conversational feel, and a straightforward, businesslike quality. Several of the teachers

delivered their content in a mellifluous, modulated voice. They altered their voice, as if acting, to create a character or a tone. Thomas achieved a conspiratorial sound by lowering his voice and whispering into the microphone: "I told you this test was going to be easy." There was friendliness conveyed in the vocal quality. Daniel, Thomas, Heather and Alex included laughing, altering the pitch and tone, changing the volume and raising the voice level, in the delivery of course content, to emphasize enthusiasm for a topic or an answer. Alex stated: "Ahhh, GREAT! Great!", where the words were emphasized through loudness. Daniel acted out a part for the students by making his voice sound like a stereotypical surfer: "Whoa man, look at this dude, look. That's always done the same way. Doesn't matter where the light is!"

Teachers did not always convey positive emotion in their voice. Instances were observed of the frustration felt by the teachers at a lack of student understanding, the level of student un-preparedness, or the lack of student interaction. Alex exhibited a level of impatience at students for not responding when asked to do so: "Can somebody do that calculation for me... I don't... I'm not patient today... somebody do that calculation for me please."

5.1.6 Media realism category

Media realism is a construct which includes "techniques that make non-existent things, people, or events ... feel as if they are 'real' when they are perceived through media" (Lombard & Ditton, as cited in Shin, 2001, p. 124), and that answers the question: are responses and reactions to the media seamless in that they are directed at other users

with no indication of media involvement? This category is manifested through indicators that give the perception that people/things are real when perceived through the media.

Indications that the students perceived the people and things around them as real were observed in the context of interactions with his/her peers, and with the teacher. Students reacted instantly in DM to comments made by the teacher as well as comments made by their peers. On logging into the classroom, students were greeted by the teacher and immediately greeted the teacher with: "hi sir," "Hi miss" or "how are you today?"

Alex behaved as if the people and objects in his room were real: "Let me see them [*sic*] faces. Let me see if they're puzzled or not!" Alex reacted to the DM content from the student as if he were speaking directly to the student. The student responded in DM to the audio content, in real time, as if he/she were speaking directly to the teacher. Daniel posed a question about genetics. A student responded immediately with: "They carry the gene." Daniel : "That's right. Sex linked says N*****." Percy engaged students in discussion about a graphic on the WB: "Can anyone tell me the message that is being conveyed?" and student 1 replied in DM: "because it makes kids fat and this kid is kinda [*sic*] fat." Student 2 said: "to [*sic*] many babies eat McDonalds." Student 3 countered: "that McDonalds food is unhealthy." Percy responded to the messages as they appeared: "Yes student 1." "Yes student 2. Good." "Yes student 3. Go a little bit further." Teacher reaction is immediate in response to the DM.

Alex exhibited immediacy in the context of teacher-student instruction. A mathematical concept was being demonstrated during an Elluminate *Live*™ session and students expressed confusion about a step. The teacher noticed the confusion and

countered with a demonstration on the WB: "The angle is measured like this luh [*sic*]." Teacher immediacy was also evident in a session where Daniel implied "seeing" what the students were doing outside the WBSSC. The teacher introduced the term 'chiaroscuro' from the curriculum. Immediately after stating the term he added: "Don't be out there Googlin [*sic*] up that word."

Student actions and behaviors noted during observations revealed that the student perception of reality in the WBSSC fluctuated. The behaviors were manifested at the end of the class when the time period for class ended at their physical location. If the bell rang in their physical location [school], students tended to log out of the WBSSC almost immediately, sometimes without asking the teacher for permission to leave. The school bell took precedence over the web-based classroom teachers' presence. Students direct messaged the teacher in the middle of a lecture to inform her that class was over at their site: [Student 1]: "miss we gotta [*sic*] go ... we got [*sic*] an English test," and finally: [Student 1]: "bye." The teacher did not respond to the message and students did not wait, but exited after a short period of time without permission.

There were instances of students who did not make contact with the teacher or their peers. These students did not participate in the conversations that were occurring in DM and remained silent, sometimes, for the duration of the class. The teachers did not react to or draw these students into the discussion and the students remained on the periphery. Some students responded in a limited but mechanical fashion with yes/no, or verbatim responses.

5.1.7 Social responsiveness category

Social responsiveness is characterized by a medium which takes on characteristics that invoke a response from the user. The user views the medium as being real and will react and respond to it in the same manner that they would a real entity. The users feel like they are there and in contact with the medium. During a session, Charles and a group of students were involuntarily logged out, and back in, from the Elluminate *Live*™ environment. Charles reacted with: "Ok, I'm back. Looks like we got booted out of class there." The word "class" was synonymous with the Elluminate *Live*™ setting. Heather made comments during class that illustrated her perception of the medium as real. During a class presentation, she was loading a series of slides into the WB, which was taking a considerable amount of time. While the show was loading, the teacher commented using the two-way audio: "come on!" expressing frustration with the speed. The teacher noted to the students: "Talking to the computer now." Students and teachers regarded the WB with a high degree of realism. When given permission to use the WB for coursework or for social activities, the students drew and doodled as if writing with a real pen or pencil. Teachers directed the students' attention to the WB with comments such as: "Ok, back to the whiteboard if you can," or "On the whiteboard right now."

5.1.8 Expanded affective category

The expanded affective category deals with the use of colors, text fonts, and emoticons other than those found in the Elluminate *Live*™ setting, and abbreviated language to indicate emotion and presence.

Students were not observed using color or fonts to indicate emotion in the WBSSC. The teachers did vary fonts in their presentations but tended to rely on black text in the delivery of content. Teachers used different color pens to outline or emphasize important details on the WB. Teachers incorporated colorful graphics into their WB presentations.

Students made extensive use of emoticons in DM. Students used an elaborate set of characters that conveyed a sense of emotion. The use of emoticons was interspersed in the text conversations that took place between students. Students showed preference for a text-based emoticon language, including graphical elements within an emotional context. Examples of these were a series of faces which conveyed: happy: ":), :-), ;-), :-D", sad: ": (, :-(," confused: ":-s, :-p, ;-p," disgusted: ";-s," and surprised: ":-(), :-O." Others were unique character combinations, such as "O_O" eyes looking blankly out, and: "O_o," a wink.

Students expressed emotion to other users with abbreviated letter combinations. These were used exclusively in DM by students, and rarely by the teachers. The letter combinations could be lower or upper case, with uppercase indicating shouting to the viewer. Examples of these were: "LOL" and "lol" which meant laugh out loud. Another derivation indicated riotous laughter: "rofl" or "ROFL" which meant roll on floor laughing. "Lmao" was another way that indicated a hearty laugh meaning: "laugh my ass off." Students could promote the seriousness of a response with the addition of: "j/k" which stood for just kidding. Surprise or sarcasm could be shown using: "omg" or "OMG" which meant Oh my god. Disgust, rejection, or negating a comment was

communicated through: "nvm," which meant never mind. "Whatever" [w/e] was used by students to indicate their annoyance or anger. The context of letter combinations came with their usage or in their amalgamation with other words. Agreement could be expressed with: "okies" – OK, or: "oicic," meaning Oh, I see, I see. Certain character-word combinations specified emotional acts such as crying and whining which were: "*cries*," and "*whines*." Complete sentences could be accomplished with specific letter combinations: "U r what u eat" read you are what you eat.

Students incorporated abbreviated words or language in DM that were used to speed up communication and transmission of ideas to the teacher, or to the class as a whole. "Calc," "trig," and "pyth" were mathematical terms meaning calculator, trigonometry, and Pythagoreans. "Pplz," "thnx," "plz," "rox," "blog," and "cuz" replaced the words people, thanks, please, rocks, weblog, and cause. Students relied on abbreviated language to help develop unique identities in their WBSSC's, in many cases, by creating names that were tied to a login sequence. The names stood out from the regular usernames in the participant info area of the Elluminate *Live*™ environment. Examples included: "The Kay Kay Kaylas," "..::Olivia::..," "~*~Cassandra~*~," "...**Jeanette...**," "**Noelle -----**," and "EvAn." Students logged in with their first name and the initial of the last name to draw attention.

5.2 The Teachers' Role in Promoting Social Presence

5.2.1 Affective category

Two teachers argued that the ability to convey emotion was important, that the teacher had a critical role to play in that conveyance, and that the ability to show emotion was directly related to certain characteristics of the student and the teacher. Heather indicated self-disclosure was necessary to provide the basis for the sense of realism:

> I think that that [*sic*] is a very important one. That to me makes the teacher
> a real live person to them [students]. … I told them about me so that they
> could see that I was a real person, that I was here, that had a family, that
> had, that I was traveling, and so on, not just the fact that, you know, I'm
> that teacher who teaches them Math.

The role of emotion was stressed as well:

> In our environment it is even more important [than in the f2f] because they
> don't have the face to view, they... and they don't have the fact that [the
> teacher] lives down the street, or they see you in other capacities, that you
> are the person who conducts the choir, or you're the person who, you
> know, helps with the softball in town.

There were indications that the role of the teacher extended to making sure students maintained a standard of acceptability. Charles noted: "I have a role in encouraging the students to express emotions, you know, feel free to tell a joke, or a

personal story. I also have to be able to communicate to them exactly where the line is for acceptability."

Thomas argued that there was a limitation placed on the WBSSC, that: "This is a text based environment and the ability to express ones' self in that environment will be directly related to the skill set developed through other text based communication means." He noted that many students do not have these skills and teachers need to work on building the skills with the student. Daniel indicated that the level of emotion and expression of humour had risen in his classes this year as opposed to years past. He ascribed this phenomenon to the increased use of MSN:

> They spend a lot of time doing this. And as soon as they come to class, lots of times, they'll pick up where they left off last night while they are waiting for everybody to show up while I am taking attendance. That first one, expression of emotion, they log on and say that up front. 'This is [student] in a good mood, or [student] what a day I am having'. They just want the world to know that they found a way to communicate their mood, their sensations.

Thomas viewed using humour and self-disclosure as an integral component of developing social presence. Thomas emphasized his role in setting the example:

> I think that the social interaction that has to take place in a synchronous classroom is critical ... my role as a teacher is to encourage that and to show that I can ... show emotion. I can also make use of humour ... do

self-disclosure. So, if I am setting the trend, the students will certainly follow.

The teacher also suggested that the emotional component of social presence was what made the WBSSC successful: "If we don't have it, then there is a big piece of the educational process lost. Because if we're not gonna [*sic*] have these kinds of things, just give em [*sic*] a textbook!"

Daniel communicated that it was important for the teacher to convey a sense of humour:

When they get into this, they find that this is easy, and they find that there is social activity on there, and I think ... they [students] look forward to coming to class and doing this sort of thing ... I know that, sitting behind the computer, well, they might as well be amused.

5.2.2 Cohesive category

One teacher attested to the importance of vocatives in maintaining a sense of involvement in the classroom. The practice of greeting the students by name and referring to them by name was observed in the context of content delivery. Charles noted:

That has a role in what I do from day to day. There's a sort of more underlying role as well. I mean, when you hear your name in a meeting, your ears pick up so if you have drifted off because you are bored, or something like that, it tends to bring you back into the ... into the activity.

Heather argued that the vocatives fostered a sense of connection between the student and teacher:

If you call people by their names, then that person automatically makes a connection with you … even in face to face. If you meet someone and call them by their names, there is a bond that comes about … each person's name is special to them.

Alex noted the use of inclusive pronouns as necessary to building a sense of group identity or a sense of cohesion:

I do use inclusive pronouns a lot because I do consider us … when we are in a class, I do consider us as a "we" situation, or you know, we're in it together. I do that quite often, say 'boys, c'mon [*sic*] now, we can do this.

Heather stated "collectively we are successful" which built a sense of being supported, an especially important concept for students who are alone in a site: "I am not sittin [*sic*] here by myself in this site. I am part of a group."

Percy asserted that social discourse at the beginning and end of class was vital to building a group concept: "Talking about the weather, vacations, trips, sports tournaments or winter activities. [Lets them] connect to their own community or their own lives." Thomas commented that discourse should be related to the curriculum. He indicated that it might take time away from the curriculum [time on task] but reinforced the idea of the importance of the social time: "As long as we try to keep it subject specific, you know, I try to keep it to [subject] if I can. You know, I don't think there is

anything wrong with that." Charles viewed chatting as very important in this medium, to inquire about students so as to make them feel part of the group:

> All of these little tidbits of information, first of all, ... create that cohesiveness that you are talking about, but it also sort of ... builds a better knowledge base of who the people are and what they like to do, and how their experiences might be similar to yours ... all of these things have a role to play, if it is in an educational setting or not.

Thomas noted that student interaction and the level of group interaction ebbed and waned depending on how interesting a topic of conversation was:

> If the students' interest is maintained, the level of interaction is high, the level of group interaction is high, the level of cohesion is high. Sometimes, the subject area is boring which makes it difficult to raise the level of group interaction.

He noted the importance of being aware of these indicators in the WBSSC:

> It is easier for it NOT to happen in this environment. It is no less or more important for it to happen, but because the environment is so non-communicative, it is probably more important that we as teachers are aware of it, and can ... supplement the regular interaction by making things a little more contrived. In trying to set up situations where we CAN speak to each other, speak to the kids, and the kids speak to each other ... in a more social setting.

5.2.3 Interactive category

Thomas noted that continuing a thread was used to support interaction by explicitly referencing student responses and drawing attention to those responses: "I am always trying to direct people [attention] to the DM. 'Oh look at the comment that so and so just made' … and they are commenting on my talking … I find that it's wide open in that way." Charles commented:

> I don't see too much of one student picking up on another students' idea
>
> … but it does happen from time to time. I do not ever see students quoting
>
> from other students unless I have misinterpreted a question and someone
>
> else is restating the question, so as to get me back on track …

Heather suggested that complimenting was both positive and negative in nature and stated that students could be complimentary to their peers, as well as un-complimentary, or nasty. She admitted that she tried to analyze and police statements and censured students for the use of language that was hurtful or mean: "We want to make sure that this interactive is support[ive] and not, causing students to become less socially involved or less involved in their classes cause they're afraid that someone's going to make a negative comment about them." Daniel remarked that students did compliment one another in the DM:

> As they say, school can be a cruel place, in traditional school. I don't see
>
> that online, with that rare exception that I've seen this year. It's generally
>
> very supportive and I find that to be more so online than I ever did offline.
>
> They tended to be more competitive [in face-to-face], carved out their

little piece of the world or trying to impress somebody or put somebody down. You don't get that online in the same way. Or, I haven't seen it yet. Maybe as we go on into this, and it becomes more and more ubiquitous, maybe it will.

Two teachers argued that students asking questions of them was crucial to gauging the level of understanding of the students. Charles noted that his role was to foster and encourage students to ask questions and not put up barriers which made them feel uncomfortable in asking: "It is important that I foster a very dialogue oriented environment." Daniel declared that questioning was important to making students feel included: "Students react and put their two cents in. To me, it's a way that they can feel part of the group. And most of the time it's fairly warm and fuzzy, and it's not threatening."

5.2.4 Mechanical and expressive interactivity categories

Charles observed that the nature of the course had a direct influence on the type of interactivity used by the students:

If you take a course that's focused, may we say, on literature, where students' personal viewpoints and ah, and emotions have tremendous relevance, then certainly I can see the other form [expressive interactivity] of messaging becoming a little bit more prevalent, but in my particular discipline, which is [course], I find that things are definitely skewed to this end, to the mechanical interactivity end.

Daniel, Heather, and Alex viewed mechanical interactivity as a necessity in developing an understanding of the content, and as a tool for the teacher to gauge the level of comprehension. Students were expected to respond with the mechanics of a problem, simple yes/no agreement, or with succinct, subject specific answers.

Thomas commented that, in the classroom, the interactivity tended to be less mechanical and more expressive in nature. The teacher maintained that mechanical interaction had a limited usefulness and expressive interaction was more common:

Ninety percent of the stuff that we do in my class is expressive. We're seeing students who are talking a lot about what they like and what they don't like, what their feelings are, what their views are. It's not something that is cookie cutter. It is more that they have got to … dig inside themselves to find the answers to the stuff that they are doing. If you are going to post anything up in the direct messaging, it's not yes/no, yes/no. It's 'my opinion'. The mechanical side has a role in classroom management and some evaluative stuff, understanding the topic, answering a quick poll. My role is to always be asking them their opinions.

In practical terms, it took effort to keep students using expressive interaction: "What do you [the student] think, feel? I hate the yes-no's!"

5.2.5 Audio-sensory category

Heather suggested that the quality of a person's voice impacts social presence:

... that your voice be one that you can listen to, not monotone or shrill.

The tone of voice impacts social presence because that is the one item that

the student has ... to gauge how you are feeling or the mood of the room.

The use of the two-way audio by the students was encouraged but not forced by the teacher. Charles indicated that the voice tends to communicate a lot more than we think in showing comprehension of a concept being presented in class:

We say that in a face-to-face environment 80% of what is interpreted comes from the visuals that are associated with what's going on in the room, and only 20%, perhaps, from what is being said. And when we get into an environment like this one, where you see a lot of what is going on on [*sic*] the whiteboard but you understand most of what's being presented to you because of the audio that's being received.

Daniel related the importance of voice to socio-emotional impact. He explained that the relevance of audio was in the ability to hold and capture the students' attention, and to help smooth the entry into web-based courses for those who were doing distance learning for the first time:

I don't want to be intimidating. I know that most of my students, [course name] may be the only course that they are doing, the first course that they've done online, and I don't want to be doing to them what I can remember being done to me years ago when I did university courses via distance education: 'Oh, shoot me now!'. So, I am trying to keep it so they think that there is a person on the other end, or that they know that there is

a person at the other end, who is fairly playful who will accept, you know, an awful lot. And that this is, again, this is a fairly safe and fuzzy little environment.

Alex commented that the character, or the personality of the teacher could be conveyed to the students through voice quality, and that the students could: "get a picture of who he really is ... the first two [voice level/intensity and tone of voice] are big to me because I got to get them hooked in." Dialect, intonation, and volume all contributed to letting the student know the teacher personally and conveyed his sense of energy and passion for the topic being taught.

5.2.6 Media realism category

Heather provided an example of students asking permission of the teacher before leaving their physical location to go to the bathroom:

They ask you things like 'can I go to the washroom?' ... They must perceive this as being a real classroom where they have to ask to go to the washroom. Where they have to ask can they go down to the office because the principal is paging them ... those are the same kinds of things that happen in a real classroom. So, therefore, because they ask those things, I think that a large portion of them ... there are a significant number of them who perceive it to be real because of the little questions that they ask. They must be thinking that, if I do this in my real classroom, then I must be expected to do it here.

Daniel remarked that he perceived people and things in a realistic fashion. His sense of realism was fostered through his perception of students in the classroom:

> That's why when I see them face-to-face, very little changes. I honestly feel they walk into the room, or I walk into their room, and we already know each other. I know them to be real through this thing. They know me to be real.

He stated that when the teacher and student entered the WBSSC that they were not external to the medium but were working in and around the environment:

> I know wherein I am. It holds me. I almost interact like I would if I were a blind person in a classroom. I am blind in the classroom but I know I am in a classroom with these people, interacting. And here online, I'm not blind because I am using my eyes to use this medium, but it is still very much … I feel like I am physically, emotionally, mentally, in a space with them [the students]. And the medium is helping me do that.

The same teacher indicated that the perception of a student was real. He didn't see the name or a representation. He was conjuring up "the real flesh and blood person. In my mind they have an embodiment." He attributed the strong sense of realism to his genre of work; he is an artist, which requires a strong visual sense.

One teacher credited the ability to create a sense of realism to the tools of Elluminate *Live*™. Charles claimed that when he was shown Elluminate *Live*™, he was "blown away" by the robustness of the environment, in that the names had become something more than just text in the DM. The tools and the Elluminate *Live*™ setting

gave a feeling of reality that didn't exist in the old system: "In other modes [of delivery] that I have used, the only sense that there was someone at the other end was if they [*sic*] activated a microphone and spoke when I posed a question." The teacher indicated the perceptions of the other people were greater, more realistic.

Alex compared entering the Elluminate *Live*™ room to going into a physical classroom, and that the level of perception in that room, between teacher and student, was such that they were really there. He matched this to:

> opening my door and seeing my students. I don't see their faces, but I know that if I ask them to do something, they'll do it for me. If I ask them to write on the board, they'll do it. If I ask them to go to scan something for me, they would. … When I log on, I'm opening my door, man, opening my door to my classroom. And when a student comes in, they pass through my door. I see either smiling faces, and I can imagine that I guess but … I do have a sense of connection with my students, I do get involved in it. … This medium is very real to me. My feeling is that the kids feel that way too.

Thomas noted that the level of realism was a good second best, as opposed to the ideal of a face-to-face classroom, but that the realism needed some improvement. He also indicated that students do not exchange enough information to give them a sense of who they are connecting with, enabling them to establish an identity or presence for others to share. He stated that the medium is not really effective at the present and that many students "feel isolated and don't feel as being part of this team that we talked about

earlier. I think that there are students who don't know that they [other students] exist beyond a name in a list."

One teacher remarked that they have a role in fostering the realism of the medium. Percy noted that it was an excellent environment for those who normally sit back and were not active in the classroom:

I think that we have a fantastic medium for the shy individual who normally sits in the back of the classroom and is seldom heard and can just avoid speaking because of the precocious kid in the front of the class ... who'll answer all of the questions. I do aim for a feeling of reality in the classroom; that the student is there. However, there are some students who are on the edge, on the periphery and they're not really a part of this. But I suspect that even in the [face-to-face] classroom, some of those students would be lost as well ... one of the things we are trying to do is reduce the distance and develop those connections.

5.2.7 Social responsiveness category

Charles commented that the medium was perceived as a real entity and not a set of virtually generated graphics:

As soon as a tool doesn't work or a button doesn't work, the user becomes aware of the fact that it is a piece of code. However, when the code is working ... I respond to this medium as being real ... it doesn't seem to be as real if I am viewing a recorded class and it is not live. Most students find this a very comfortable environment and treat it as being real.

Students started communicating through DM as soon as they logged into the room and continued to send messages, until they were acknowledged, by either the teacher, or by other students. Charles noted:

> By becoming engaged in some sort of activity [involving the medium] it automatically generates the reality. However, I know that some people's lack of response or their delays in response, suggest to me that they don't perceive this as reality, that there's something else in their environment [local] that is demanding more of their attention. Certainly for me though, for me it's real.

Daniel articulated the view that there was a high degree of realism to the medium that paralleled or exceeded other common media used in society:

> This medium is as real as a telephone, alright? ... This medium is as real as ... it is as real as face-to-face, knowing that people can in fact be something different then they are face-to-face. ... This is a mode of communication. This is a mode of interaction. This is a real medium.

Alex supported this argument with the contention that he lost sight of their physical location and became immersed in their virtual location:

> When I am in a class, I don't know that there is anything going on in my room [the physical space]. People have come into my room and tapped me on the shoulder, I get totally into it and, as a teacher, that's my energy in the classroom, and when I am in this classroom ... I immerse myself in

this, I really do. I feel immersed now without any sensory feedback. I think the kids do too.

The feeling of immersion was described by Thomas as being in "the zone," and students who were particularly adept at MSN (Microsoft Network), ICQ (I Seek You) and other text-based programs, got into the zone faster. They adapted to and acknowledged a level of reality of the medium. Thomas likened it to playing a video game that was either good or bad. The bad video game didn't allow the person to get "into" the game whereas with the good video game: the person became immersed in the environment; in the zone:

That's what we want here. We want the students to be immersed so that they forget that they are sitting in a lab, in front of a computer screen, and you're typing in messages, and everything is … what happens in their head is, bang! Their thoughts are put into the classroom and vice versa. The classroom is just absorbed into them. There again, the students who have experience with MSN are quite skilled at it. They would … get into the zone quicker, and easier. The students who are not, they tend to not be.

He stated that academics do not play a role and that weak students were as adept at getting in the zone, as were academically strong students. It was dependant on the willingness of the student to accept the environment as real and work with it in that fashion.

5.2.8 Expanded affective category

Thomas suggested that the Elluminate *Live*™ interface was boring and drab. The teacher stressed the need to use photos/graphics to generate mood and emotion. He

argued that the WB offered a lot of possibility for generating mood through font/colour using the tools available. Alex explained that the use of color, fonts, graphics, and creativity were promoted at the beginning of class. In his WBSSC, students were given control of the WB in which they used to doodle, write graffiti, write greetings to one another, draw, and generally socialize through graphical expression. Charles commented: "All of these have a role to play in just sorta [*sic*] livening things up on a day-to-day basis … makes for a pleasant environmental value."

5.3 Summary

The purpose of this chapter was to present the findings of the semi-structured and structured observations completed on the recorded web-based synchronous sessions. The chapter also included data obtained from the semi-structured interviews completed with the teachers who taught the sessions. The goal of the observations was to describe and provide examples of how social presence manifested itself in the context of a WBSSC. The purpose of the semi-structured interviews was to obtain the teachers' perspectives on their role in promoting and fostering social presence.

The findings were presented in categories which corresponded to each of the nine listed in the revised instrument (see Table 2.2.1, page 24). One additional category was added which detailed indicators that had been observed by the researcher. The category "developing a unique identity" appeared to constitute social presence but was not accounted for in the instrument. The findings of mechanical and expressive interaction categories were provided under a single heading. Each category was broken down into its respective list of indicators and specific examples of each indicator were provided from

the data obtained from semi-structured and structured observations. Examples of each indicator were provided in the context of student responses to teachers, teacher responses to students, student responses to students, student and teacher interaction with the tools of the WBSSC, and student interaction with the content. Teacher perspectives on their role in fostering social presence, and their perspective on the importance of each category and indicator were obtained from the interviews.

The next chapter will present the analysis and discussion of the findings found in this chapter.

Chapter Six

Discussion of the Findings

6.0 Introduction

The last chapter presented the findings obtained through semi-structured and structured observations of recorded web-based synchronous classes, and semi-structured interviews with the teachers who conducted those classes. Excerpts and quotes from the observations and the teacher interviews were presented. The purpose of this chapter is to discuss the findings in relation to the research questions presented in chapter 1:

1. How does social presence manifest itself in the context of the web-based synchronous secondary classroom?

2. What is the perceived role of the teacher in promoting social presence in the web-based synchronous secondary classroom?

The data from each category in chapter five were examined, and patterns that were identified will be discussed with respect to congruencies with the literature presented in chapters two and three. The perceptions of the teachers on their role in fostering and promoting social presence will then be discussed. The relationship between teachers' perception of their role in promoting social presence, and their observed role in the recorded classroom will be analyzed. Suggestions for future research and implications for teachers' practice will be offered, which will be followed by the conclusions drawn from the analysis.

6.1 Social Presence in the Web-based Synchronous Secondary Classroom (WBSSC)

Social presence was defined by Garrison (1997) as "the degree to which participants are able to project themselves affectively within [a] medium" (p. 6). Analysis of the data revealed that social presence manifests itself as follows in the WBSSC:

- According to the categories in the revised instrument and through geographic presence.

- through the choice of specific tools

- for the students, through reliance on the conventions of communication of synchronous chat.

- in a context of digressions

The following sections consider each of these categories separately.

6.1.1 Social presence, the instrument, and geographic presence

Observations of the WBSSC revealed that social presence was manifested through a variety of responses that corresponded to all the categories listed in the revised instrument as well as through geographic presence, with the exception of those noted above. This is a important because it reveals the richness and extent of social presence that was manifested in the WBSSC. Rourke et al., (2001) and Richardson and Swan, (2003) discussed the importance of social presence to online learning. Social presence, or the ability to establish an affective presence, is critical to student success. Students were able to promote a level of social presence for themselves, even with the limited access to the tools of the Elluminate *Live*™ environment, and their reliance on a single tool for communication and interaction. More importantly, they were able to express emotions,

feelings, and moods, build a sense of group cohesion, interact with teachers (mechanically and socio-emotionally) in response to teacher questioning and interact in discussions with their peers. Students established presence through developing an identity. Their use of the language, and behaviors and actions in the classes contributed to making their presence known and felt by teachers and peers. Teachers were also able to establish social presence. They promoted a sense of group presence in the students through their use of inclusive language, and by referring specifically to geographic regions where the students attended school.

Social presence is a critical element necessary to support learning in a web-based classroom, and in supporting other types of presence. In their assessment of social presence in an online asynchronous environment, Rourke et al. (2001) stressed the importance of social presence to cognitive and affective presence:

> the function of this element [social presence] is to support the cognitive
> and affective objectives of learning. [It] supports cognitive objectives
> through its ability to instigate, sustain, and support critical thinking in a
> community of learners. It supports affective objectives by making the
> group interactions appealing, engaging, and thus intrinsically rewarding.
> (The Community of Inquiry section, ¶ 1)

The ability of students and teachers to manifest social presence in a variety of ways in the web-based synchronous classes increases the probability of engagement and increases the appeal of the classroom. Students and teachers were limited to the number of tools that could transmit and receive responses. The fact that such a rich diversity of

responses was observed in diverse contexts indicates that they were able to adapt to the limitations imposed on them. One negative aspect was that social presence happened not by design, but by chance and despite the actors. The manifestation of social presence did not appear to be promoted or fostered through specific pedagogical choices by the teachers. The question remains as to how rich and "loud" the voice of the student would be if they were able to manifest social presence through such a diverse set of responses, and by using the full potential of the tools of Elluminate *Live*™. Observations from this study revealed that students' responses did support a level of affective presence.

6.1.2 Social presence and the choice of tools

Analysis of the observations of the web-based synchronous secondary classes revealed that teachers and students differed in their choice of tools used to convey social presence. Students relied on the DM, while the teachers focused almost exclusively on use of the two-way audio component. There were several tools available to both groups in the Elluminate *Live*™ environment, all of which supported immediate transactions between the actors. It is interesting that the two groups chose to communicate through the selective use of a single tool, especially when a variety of tools were at their disposal. However, there are several explanations for the choice, one that relates to the teachers' control of the tools of the WBSSC. Teacher control, in this case has two meanings. One refers to the control of use through permissions, and ownership, and the other to how the teacher controlled, or managed, the integration of the use of the tool into the web-based classes.

The issue of permissions affected the students' choice of communication tools. Teachers had the sole responsibility for providing permissions to the students to use the WB, DM, and two-way audio. When teachers logged into a web-based classroom, they were given a special designation called "moderator" which afforded them rights and privileges that students did not possess. The teachers were automatically given permissions for all of the tools available to them in the WBSSC's. In order for the students to use the tools, a teacher had to assign rights for that tool to the students. In most of the classes observed in the recorded sessions, students were provided with two-way audio and DM permissions. But, students relied exclusively on DM to convey their responses and, with few exceptions, didn't appear to request the use of other tools. Even though students were quite capable of manifesting social presence using DM, they limited themselves to using a single tool which restricted the number of ways that they could make their voice heard.

Student's use of tools other than DM was affected by the way teachers used and controlled the two-way audio. Teachers used that tool in a manner that paralleled a traditional face-to-face lecture. They would typically begin their sessions by activating the two-way audio and use would carry through for the duration of the session. They were the sole users of the two-way audio. Teachers used the tool to transmit feelings, moods, and emotions through tone, intensity, and the emotion conveyed in the sound of their voice. If students responded, they relied on the DM to transmit the response. For students to gain use the two-way audio meant that the teachers had to surrender the use of the tool. One teacher did encourage students to take control of the two-way audio: "I

would love for you to take the mic and give us your comments", but the invitation was rarely acted on by the students.

Teachers allowed students to maximize the use of a tool (DM) that they were comfortable with, and which could be used effectively to manifest social presence. But this was not really maximizing the students' ability to establish social presence using the potential of the tools of Elluminate *Live*™. The voice of the students was heard, they managed to develop social presence, but it is possible that the presence of the student might have been enhanced if they were provided greater access to the audio component. The control of the permissions of the tools by the teachers, and their willingness to share control of the tools with students, influenced how both groups manifested social presence.

In their study of the role of online communication tools in higher education, Funaro and Montell (1999) noted that "it is not so much the tool that improves teaching and learning but how the instructor integrates the tool into the curriculum and into the educational setting" (Introduction section, ¶ 1). If the teachers observed in this study simply used and promoted the tools as a means to an end: to get a response rather than involve, or didn't properly plan for integration through sound pedagogical decisions, then the reason for use would be relegated to ease of use or personal preference. It did appear that planned use of the tools in the curriculum might have been orchestrated by some teachers. Question and answer sessions involving students' use of tools were observed during the recorded classes. However, teachers solicited students' replies through verbatim responses through DM. Teachers did not openly encourage using another tool

such as two-way audio. There were only two cases noted where teachers requested that students provide a response using a tool other than DM. The use of the tools did not appear to be planned as an integrated component of any content delivery or social interaction, but merely a means of gaining students' responses to curriculum content.

Manifesting social presence in a WBSSC depends on how the tools are used. A study by Murphy and Collins (1997) on the use of electronic chats such as DM in post-secondary courses found that "they appear to allow a sense of communicative immediacy and presence that is often lacking in asynchronous computer-mediated communication" (Introduction section, ¶ 7). What the synchronous environment offers over this asynchronous one is the benefit of voice tools such as the two-way audio as well as the interactive capabilities of the WB. In Funaro and Montell's (1999) study, the authors noted "the single most influential variable that affected the impact the online communication tool had on learning was the varying degrees of planning for integration of the tool" (Conclusions section, ¶ 3). Although the authors were referring to a context of online asynchronous course offerings, this claim still has significance to the WBSSC. To promote manifestation of social presence, teachers might need to plan for the integration of the use of the tools. In this study, students and teachers were using, and had a reliance on, what was familiar and comfortable to them. Teachers did not present curriculum activities that used a varied selection of tools. If students had been able to make more use of the audio tool, they might have had more of an opportunity to express emotion, cohesive responses, and other manifestations of social presence. However, this

use of the tool would need to be accompanied by conscious planning on the part of the teacher to encourage open and free expression conducive to manifesting social presence.

6.1.3 Social presence and conventions of communication

The observations of students' interactions and communications revealed that they communicated largely using the direct messaging (DM) feature of Elluminate *Live*™. The students used this tool in a way that characterized the transfer of a set of conventions and communication behaviors that might be witnessed in another context, i.e. that of communicating in internet-based, synchronous chat communities such as MSN (Microsoft Network), IRC (Internet Relay Chat), and ICQ (I Seek You). These communities allow individuals to meet, exchange ideas, socialize, date, participate in a myriad of other activities and are largely used for informal discussion. Reid (1991), in her analysis of IRC noted "a large part of what goes on … is not work but play" (Preface section, ¶ 3). This is a highly social environment that encourages interaction. A person is not limited to a single discussion meaning that they can have several "rooms" opened at once, with conversations taking place on a one-to-one, or one-to-many basis. Students were limited to the use of a single room, but could easily carry on threads of discussion with more than one individual. The DM supported a feature which allowed the user to send messages to selected groups of peers, individuals, and in a public or private mode. Also, participants in IRC or other chat communities are anonymous in that they do not have physical contact, they do not have an awareness of one another beyond the room, and they can have login names that are fictitious. Students could also have a degree of anonymity in the Elluminate *Live*™ setting because they were free to choose a name for

themselves which did not have to include their proper name. They were free to use first names only, and could create names for themselves out of keyboard character combinations. Use of DM supported social interaction between students that could be carried on "backstage" to the main classroom activities.

In their use of DM, students in the WBSSC borrowed the language from chat communities. Reid (1991) refers to the role of the type of language used in chat environments:

> In interacting with other people, we rely on non-verbal information to delineate a context for our own contributions. Smiles, frowns, tones of voice, posture, dress … tell us more about the social context within which we are placed than do the statements of the people we socialize with. (Part One section, ¶ 1)

In the context of chat, text takes on a new dimension, one which relates the context and the meaning of the words. This language consists of concise representations of words (plz – please), facial features (:-) – smile), and abbreviated statements (lol-laugh out loud) to convey emotion, mood, and feeling. Reid (1991) describes this language as "systems of symbolism and textual significance to ensure that they [participants] achieve understanding" (Constructing Communities section, ¶ 3). The findings of the present study revealed that students relied on four approaches to using text to communicate their emotions, humour, feelings and moods. These included the use of abbreviated words, letter combinations that represented a specific word, and emoticons or graphical symbols. A less used form was the character-word combinations representing actions: *whines*,

grins. Students chose to repeat letters of a word, or expand the length of a word to heighten the impact. This type of text phrases and key words used in the text-based conversations were described by Murphy and Collins (1997) as behavior codes, which allow users to interact and understand one another. The "behaviors [are] expressed in text [and] are designed to present a recognizable self, set a context for the interactions, share affect and meaning, and minimize misunderstanding" (Communications Conventions section, ¶ 1).

Students did not pay specific attention to grammatical rules or rules of spelling when composing responses in DM. There were numerous cases of improperly used words: "your" [used for you're], improperly spelled contractions: "thats" [that's], "Im" [I'm]. Students incorporated colloquialisms into their responses: "ya" [you], "yer" [your], "ur" [you're]. How a word was typed did not matter as much as whether the message was transmitted. Students chose the most expedient method of getting the message out to their teachers or peers, which often meant a disregard for the standard language conventions. The brevity of these characters had to do with the manner in which information was transferred in the WBSSC. Information was text-based, which meant a person had to have good typing skills in order to be able to engage in a conversation that could be sustained with any degree of success. For those who do not have those skills, but wish to communicate, this set of characters served to reduce the transaction time in a text-based conversation. In addition, Reid (1991) posited that brevity in synchronous chat is the verbalization of physical cues: asterisks and characters used to highlight what would otherwise be a physical cue, i.e. **grins** for grinning. She noted that the main function

of the graphical and textual tools was to "represent ... virtual actions and responses" (Reid, 1991, Shared Significances section, ¶ 6), and that "users who can succinctly and graphically portray themselves ... will be most able to create a community within that virtual system" (Shared Significances section, ¶ 6).

Students have access to an environment in the WBSSC that is very similar to that of the synchronous chat environments described by Reid (1991) and Murphy and Collins (1997). The WBSSC contains a text-based direct messaging area which is similar to what is used in the MSN and ICQ communities. The WBSSC is also like the informal synchronous chat communities because there is geographical distance. There are also issues of awareness: students and teachers do not have an awareness of one another outside of a name. The online synchronous classes can also have a level of anonymity because login names might be changed to suit the user, and do not necessarily reveal the identity of the user. The anonymity of the IRC, MSN, and ICQ chat rooms, coupled with a lack of self-regulation (Reid, 1991), promote behavior which would not be acceptable in a face-to-face situation by strangers. The teachers of this study experienced this type of behavior in students and commented that one of their roles was to regulate, police, and limit behaviors which were not acceptable.

Given the students' involvement with these types of social communities, it is natural that they would transfer the acquired skills from the informal chat communities to the more formal online school community. The behavior codes and communication conventions were readily adaptable to the WBSSC because of the similarity to the types of text-based interaction found in the online social chat rooms. Students were

comfortable with this type of language and were very adept at its use. This use was evidenced in how they shared ideas, connected to one another, and made their feelings and emotions known to their peers and teachers. The students were able to very effectively establish social presence using a synchronous chat tool. The indicators of social presence noted in this study concur with what Aoki (as cited in Murphy and Collins, 1997) found, which was that synchronous communication can build a sense of social presence. Students adapted an informal language and set of communication behaviors to a formal setting, and as a result, developed a sense of social presence.

6.1.4 Social presence in a context of digressions

The observations of the WBSSC revealed that social presence was manifested in two distinct contexts: curriculum-related tasks and non-curriculum-related digressions. Teachers revealed emotion, feelings, and moods through responses given mostly in the context of task-oriented, curriculum-centered discussions and interactions. Students expressed feelings and emotions in the context of digressions away from the curriculum. Both teachers and students showed a willingness to diverge from the content of a discussion. Digression allowed students, and to a lesser degree, teachers, to depart from the structure and rigidity of the content and develop a social connection with those around them. In his assessment of the benefits of social presence, Aragon (2003) noted "the overall goal for creating social presence in any learning environment, whether it be online or face-to-face, is to create a level of comfort in which people feel at ease around the instructor and the other participants" (p. 60). Digression played an obvious role and benefit in fostering the level of social presence in this WBSSC because students exhibited

much of their affective and interactive responses in this context. Romiszowski (1995), in a study of discussions in distance education, noted that asynchronous discussion is particularly susceptible to digression and warned that teachers should control the direction that discussions took. This advice is certainly not suited to the synchronous classroom because students enjoyed, and appeared to seek out, the social interactions with teachers and their peers. As Polhemus, Shih, and Swan (n.d.) noted "it is the use of affective language and [*sic*] that develops a person's social presence" (p. 12). The students delivered their emotional content as responses to pictures, as a show of empathy or sympathy, with humour, and as digressions. "**Whines**", "*grins*", ":-)", "LOL", I LOEV …", and "That's awsome [*sic*]" are examples of the types of responses. Students were able to project their feelings and values, which Ubon and Kimble (n.d.) posited was "an important tool that allowed them to create … social presence and identity" (Discussion and Conclusion section, ¶ 2).

Students used socio-emotional responses, but also conversed and gave mechanical responses as task-oriented reaction to content. The responses were succinct, often single word, offerings. Teachers solicited these types of response from students as assessment tools to gauge understanding. These responses did not contain emotion, indicate feelings or mood, and did not appear to develop presence for the students. Teachers' responses to students were observed in the context of task-oriented discussion, but were often noted as digression. Students tended to deviate from the topic, digress, and would stay off track until the teachers directed the conversation back to the content. Teachers gave their responses as humorous remarks, angry reactions to students' lack of performance, self-

disclosure, and comments that revealed their personal side. Teachers relied on the two-way audio so their responses had sound and aural quality to relay feeling, moods, and emotion. Teachers managed to develop a presence but mainly in the context of curriculum content. Students preferred the social interactions, laden with emotion and feelings, and distanced themselves from the task-oriented interactions. Social interaction was of great importance to the students because it allowed them to connect, and as Northrup (2001) stated that because of this interaction, "learning more about peers and connecting them in non-task specific conversation is more likely to occur. Although social interaction might have very little to do with a course, it is still valued as the primary vehicle for student communications in a Web-based learning environment" (p. 32).

6.2 Teachers' Perceptions of their Role in Promoting Social Presence

The teachers' perceptions of their role in promoting social presence were obtained from semi-structured interviews. Analysis of the data from these interviews revealed key roles that the teachers perceived as important for promoting social presence. Teachers argued their role was to:

- be models of behaviors that foster social presence

- be willing to use self-disclosure

- help students build communication skills

- help foster a sense of group cohesion

- foster a real and engaging classroom experience

This section will analyze and discuss the teachers' perceptions of their role in establishing social presence. The perceived role of the teachers will be discussed as compared to observations of the teachers' activities in the WBSSC.

6.2.1 Teachers' role in modeling behavior

Stacey and Rice (2002), in their study of computer-facilitated learning, found that "the teacher must establish a secure interactive environment through modeling communicative behaviors while establishing online teacher presence" (Conclusions section, ¶ 4). Modeling is vital to fostering interaction which in turn, encourages presence. Teachers indicated that they should model appropriate behavior which was important and necessary in helping students develop social presence. Teachers also indicated that they should promote and encourage social presence. Teachers were not observed actively encouraging social presence through specific student activities. They did display emotion, use humour, gave evidence of indicators of social presence and modeled conduct that could establish social presence, but these behaviors were reactive instead of proactive. They exhibited behaviors in reaction to events in the classroom as they arose instead of determining the events which fostered specific behaviors. Teachers did show that they set the example for social interaction. Teachers commented that modeling was only part of their responsibility, and that fostering and promoting similar behaviors in students was another duty. The teachers repeatedly used the word "encourage", which implied an active solicitation of behaviors from the students.

Anderson et al. (2001) noted that "the teacher's role is more demanding than that of other participants, and carries with it higher levels of responsibility for establishing

and maintaining the discourse that creates and sustains social presence" (p. 7). Teachers made comments which indicated that they had a responsibility to provide examples of behavior for their students. This role was described as important for promoting social presence in the WBSSC: "If we don't have it, then there is a big piece of the educational process lost". Teachers also contended that they had a greater responsibility to determine and set the limits of behavior: "to communicate to them exactly where the line is for acceptability". Teachers were observed using behaviors which promoted discourse, referring to students by name, and periodically engaging in digression. However, the teachers' discourse was most often task-oriented and focused on the delivery of content. Because the teachers held such control over the direction of classroom discussions, there were few opportunities for informal social conversation. Teachers did engage students in discussion, but often it was structured and occurred mostly as a limited response to students' comments in the DM. The students tried, in several instances, to direct the conversation, to digress, and steer the conversation in another direction. Teachers would briefly respond to the student text, but in most examples returned to the task at hand, which was the delivery of their prescribed content for that session. Extensive social discourse between teachers and students, or students and students, did not appear to be actively promoted.

Teachers encouraged students to ask questions, which was used to gauge the level of understanding and to develop what one teacher described as a: "very dialogue oriented environment". A study by Muirhead (2004) concluded that the role of teachers is "to become facilitators who guide their students into instructional experiences that foster

interactions with other learners" (Instructional Insights to Enhance Interactivity, ¶ 4). Stacey (2002) claimed that the success of an interactive process is supported by "the teacher's role [in] developing a secure learning environment and modeling social presence behaviors" (p. 293). Teachers stated that their major role was to promote, foster and encourage behaviors that positively impacted the level of social presence of students. They also spoke of the need for active policing of interactions to discourage negative comments that might interfere with students' ability to feel part of the group.

6.2.2 The use of self-disclosure

There is a level of risk associated with self-disclosure. It makes a person vulnerable because it can reveal the person's feelings, thoughts, and emotions. However, it potentially reduces the psychological distance between student and teacher and creates a connection. Frank et al. (2003) in their study of a computerized learning environment at the secondary level noted the importance of this sense of connection and personal contact. Not only does self-disclosure impact personal connection, it has implications for student learning. Hartlep (2001), in a study of the use of self-disclosure in post-secondary lectures, concluded that "instructor's providing personal examples of concepts presented in lecture improved retention of lecture material" (Discussion section, ¶ 1). Teachers revealed that self-disclosure was an essential component for students to feel that they [teachers] were "real", not just disconnected voices, and make a connection to the teachers as flesh and blood individuals. As one teacher stated, "they could see that I was a real live person to them [students]. ...I was here ... had a real family". Teachers stressed

the importance of this behavior, but there were few examples of self-disclosure taking place, and only with some teachers.

The reason for the lack of self-disclosure might lie in the teachers' drive to deliver course content in the classroom in a timely fashion. Content delivery appeared to be the primary focus of most of the classes observed. There are time-related issues associated with the WBSSC that do not necessarily impact the face-to-face delivery of course content in the same manner. There are time zone differences (½ hour for Labrador), staggered login times for students and often, the issue of students logging in late, all of which serve to decrease the total time available to a teacher for content delivery in a context of online teaching. Digression and off-topic chat, although important, decreased the time available for content delivery. Self-disclosure would occur mostly through digression since it involves the revelation of personal aspects of the speaker and is not really topic-specific. Given the task-oriented nature of the sessions, it is highly probable that teachers engaged infrequently in self-disclosure, thus it was rarely observed by the researcher.

The manner in which the teachers were using the WBSSC had implications for how, and how often, self-disclosure took place. Monroe (as cited in Shin, 2002) noted that students must sense the bond between themselves and teachers. Equally important would be the bond with their peers. Bonds are built by students engaging with their teachers and peers. Interpersonal bonds are intricately tied to the construct of group, and teachers suggested that it could be promoted by encouraging social discourse at the beginning and end of class. Informal conversation and talk that revealed the personal side

of the individuals was necessary: "Talking about the weather, vacations, trips, sports, tournaments or winter activities … [lets them] connect to their own community or their own lives".

Self disclosure, in this instance, would be manifested through students relating their own experiences to those of their peers/teachers. There was a sense of the development of bonds between the teachers and students, and to a lesser extent, student-to-student. Teachers described their role as fostering social discourse to increase the level of presence. However, little of the discourse was of the type where the person was revealed to any extent. There were a lot of "I like", jokes, humor, and connecting, but self-disclosure did not play a predominant role in establishing social presence. Because of the personal nature, this type of interaction might require carefully orchestrated situations where the students were capable of more prolonged periods of discussion than the outbursts, off-the-cuff comments, and chat observed in the sessions.

6.2.3 Building students' communication skills

Teachers' comments revealed that skill-building took several forms. One type of skill-building was related to the students' proficiency with the tools of Elluminate *Live*™. One of the limitations of web-based synchronous learning was that students entered courses with differing skill levels with the tools of Elluminate *Live*™. Students' ability to type, to quickly organize and state thoughts and feelings, and express themselves using the language of the social chat communities would impact their skill in the WBSSC. Teachers did indicate that their role was to "work on building those skills with the students". They posited that, in parallel to modeling acceptable behavior, they had to

work on building the skills with students who did not exhibit behaviors conducive to establishing social presence. As previously discussed, students' proficiency in using the tools was a function of their own knowledge which was acquired outside of the Elluminate *Live*™ environment.

This study examined recorded classes which took place in early September, 2004, at a time when this type of skill-building activity would or should be more pronounced. Observations were also carried out on sessions recorded in April of 2005. No observations identified teachers in the role of trainer. A lack of skill-building activity has implications for the ability of students to manifest social presence. Students with a lower level of expertise in the use of the tools: typing, writing on the WB, using the audio, and communicating in general, might be at a disadvantage as compared to those who were capable and skilled. Those students with the lower level of expertise would not have a strong "voice" and might tend to fall to the "back" of the classroom. Students were observed in the recorded sessions who did tend to stay in the background, did not interact, and were not very active in their participation. Students were quick with responses in DM, didn't worry about spelling and syntax, and got their message heard. Teachers were not observed doing skill-building to compensate for minimal skills. Teachers did not draw out those who maintained a low profile, or attempt to discern why they were not participating. In fairness, some training for students might have occurred outside of the regular school day, during sessions offered by CDLI which were specifically for training students in the use of Elluminate *Live*™. As well, regardless of training, it is the students' choice to participate or not. Teachers did indicate an ongoing

role in getting students to acquire the expertise, and this, assumably, would take place as an ongoing process in their online classes.

One teacher discussed the connection between students' skill levels and the students' ability to develop a sense of realism in the WBSSC: "students who have experience with MSN are quite skilled at it. They would … get into the zone quicker". The teacher was not referring to dexterity or typing skills, but the students' ability to immerse themselves psychologically into the environment. A set of social skills were needed to cope with and successfully exist in this environment. As Reid (1991) found, behaviors in the social chat communities, because of anonymity and other factors, were often not what would be acceptable in a face-to-face environment. Thus, a second type of skill-building was necessary for the acquisition of social skills, or behaviors which were acceptable in the WBSSC. Teacher interviews revealed that some students had to be reprimanded for behaviors. If the students were not capable of censuring their conduct, it is possible that those behaviors would impact other students and their ability to establish social presence. Negative comments, harassment, foul language, and "bullying" could contribute to some students' tendency to limit their contact and participation.

6.2.4 Fostering a sense of group cohesion

Teachers modeled behaviors conducive to developing social presence and noted that they would have to give consideration to the group presence, as well as the individual. Teachers maintained that they had a responsibility to promote cohesive activities. They suggested that group-building was a collective process, that "collectively we are successful". It was understood that group-building activities fostered a sense of

connection between teachers and students, students and students. One teacher noted the need for a high level of awareness of the indicators of cohesion, to make sure that group-building did occur: "It is easier for it not to happen … it is probably more important that we as teachers are aware of it … to set up situations where we can speak to each other, speak to the kids, and the kids speak to each other".

The type of behaviors that would lead to group-building was more predominant among the teachers than among students. Teachers did stress a role in using group language, in calling students by name, and in establishing discourse. But, they did not extend this role to encouraging students to do the same. Students were observed using discussions and conversing, but these were of the one-to-one variety of text-based conversations prevalent in the social chat rooms. Teachers did model the behavior by speaking with the students, allowing digression to occur, and through personal reflection. But the opportunity for students to engage in the role as facilitator, or to take the lead with group-building behaviors, was not observed. The conditions necessary for group discourse did not seem to exist in any of the classes. Group discourse would require that students have the ability to discuss, interject, have more than one or two people involved in the conversation, and be able to control the direction of the conversation. The control was always in the hands of the teacher. Discussions rarely involved the class as a whole, with the exception of question and answer sessions which polled or sought verbatim replies. No situations were observed where all students in a class were involved in a discussion about the same topic.

Teachers noted that recognition was a significant construct in promoting social presence. Rovai (2002) referenced the idea of spirit when building a sense of community or group. Spirit "denotes recognition of membership in a community and the feelings of friendship, cohesion, and bonding that develop among learners as they enjoy one another and look forward to time spent together" (p. 4). Teachers indicated that there was an importance in recognizing someone through using their name, in creating a bond between teacher and student, and student and student: "If you meet someone and call them by their names, there is a bond that comes about, each person's name is special to them".

One teacher also recognized his/her contribution to making the web-based synchronous secondary classroom an inclusive environment for students, by creating a sense of being supported: "I am not sittin [*sic*] here by myself in this site. I am part of a group". Students in the WBSSC's operated more as a collection of individuals than as a group. There were isolated instances of two or three students conversing in the direct messaging, or of teacher-to-student and student-to-student interaction. Interpersonal bonds appeared to be developing between students and teachers, and student-to-student. These were predominantly interactions between pairs or small groups of individuals and did not involve the class as a whole. If students are to overcome the sense of isolation as discussed in Frank, Reich, and Humphreys' (2003) study that comes as a result of geographic (Lefoe, Gunn, and Hedburg, 2002) or psychological distance, then consideration would have to be given to somehow involving everyone. Not all students were participating, not all students were involved, and the behaviors promoted by the teachers did not necessarily promote inclusion of all students.

6.2.5 Creating a real and engaging classroom experience

Teachers remarked that they perceived the medium as real, behaved in the medium as if it were real, reacted to it as real entity and claimed that students held that perception as well. They also indicated that they perceived the students as real and not simply virtual representations. One teacher stated that, when he entered the classroom he felt he was not external to the medium but working in and around the medium. He compared the experience to being blind but cognizant of the surroundings: "I know wherein I am. It holds me ... I am physically, emotionally, mentally in a space with them [the students]". Lombard and Ditton (1997) termed this type of immersion as social realism where it "is the extent to which a media portrayal is plausible or "true to life" in that it reflects events that do or could occur in the nonmediated world" (Presence as Realism section, ¶ 1). Only one teacher commented on his role in developing this level of realism, stating that it was one he aimed for in the WBSSC. None of the teachers commented specifically on what they could do to foster this sense of realism. However, one teacher did credit the Elluminate *Live™* interface as being able to create this sense of realism. He recalled being "blown away" by the robustness of the medium when first introduced to it. A second teacher commented on the feeling that the interface gave him and likened it to "opening my door and seeing my students".

Shin (2002) referred to this type of presence as connectedness which referred to the "belief or feeling that a reciprocal relationship exist[ed] between two or more parties, involving an individual's subjective judgment on the extent of the engagement" (p. 123). This type of reaction parallels the type of feelings that a face-to-face classroom might

hold. To be able to connect with a teacher or one's peers on a level where they can be sensed as "alive" or real, might help the student transcend any feelings of isolation. Perhaps this is one of the keys to encouraging students to move from the uninvolved "back" of the WBSSC, to the involved "front".

Not all teachers supported the level of realism of the Elluminate *Live*™ interface. One teacher cited it as a "good second best" to the face-to-face classroom. He stated that the interface needed some improvement in that it didn't yet have the capacity to exchange enough information to give students a sense of who they were connecting with, which limited their ability to establish an identity or presence for others to share. His feeling was that many students "don't know they [other students] exist beyond a name in a list". Existing in name only would prove a barrier to building social presence to any extent.

6.3 Teachers' Perceived Role Compared to Their Observed Role

The teachers' role in the WBSSC was observed as being one of implicit, rather than explicit, support of social presence. Social presence appeared to develop in the classes despite, and not necessarily because of, the teachers. That is not to say that teachers did not actively engage in activities with their students, or that they discouraged the development of social presence in any way. The teachers simply did not, by design, foster and encourage social presence. In some cases, their gregarious nature was the catalyst for the social presence that developed. Observations indicated that there was an authentic sense of connection between the teachers and the students, but it was the social aspect of DM, and not the teachers' role, that permitted students to inject emotion, feelings, and mood into their discussions. Students used the capacity of their text-based

language to create unique identities, to convey a sense of emotion, to connect to their peers, and to foster a presence in the room. This occurred, not as a result of a conscious act or planned event by the teacher, but by virtue of them "using" the DM tool. To fully support the development of social presence, the definition and development of activities coupled with pedagogical choices which explicitly support social presence might impact the manifestation of social presence. Consideration might be given to professional development that raises the awareness of teachers on the active promotion of social presence and the capabilities of the tools of Elluminate *Live*™ for fostering this presence.

Teachers were willing to reveal their thoughts and personal feelings to the students and modeled behaviors such as self-disclosure which would foster social presence. Holt et al. (1998) made reference to the responsibility of the teacher in "creating the environment … and creating a community" (p. 48). Much of the teachers' behavior did not appear to be the result of planned activity. They indicated a role in promoting, but much of the behaviors such as using humour, conveying emotion, and sympathizing came about through the normal progress of the class session. It did not appear that there was a planned effort to foster and encourage. A conscious effort to integrate activities that model and foster behaviors which promote social presence might encourage a more extensive involvement of students in presence building behaviors.

Teachers made statements in the interviews which suggested that they had a role in developing the skills of the student. Even though they were observed modeling the skills, behaviors, and tool use required for developing social presence, they did not appear to actively encourage specific student behaviors, nor promote the use of a variety

of tools to support those behaviors. There seemed to be a reluctance to relinquish control of tools to the students. As previously noted, students relied specifically on the DM for the manifestation of social presence. Teachers controlled the audio tool and the WB. Teachers made comments which supported an active and dialogue oriented room. They spoke highly of the capabilities of the two-way audio tool in conveying emotion, presence, and making a connection with others in the classroom, the ability to hold and capture the students' attention. They also linked the ability of students to understand content, to a mixed presentation using two-way audio and the WB. And, teachers specifically related the capability of the two-way audio to its ability to reveal the personality of the individual. Students' success in the DM, and in developing social presence, appeared to extend from their abilities with the social communication tools. The behaviors were transferred from the informal online chat environment to the formal chat environment. Skill-building did not seem to play a role in the students' success. Unconstrained interaction time and being proactive in developing discourse (Stacey, 2002), and in particular allowing all actors access to all of the tools, would foster social presence. Hill (2001) noted that it was necessary to remind the learner that someone is out there and the best way to do this is with multiple means of access.

6.4 Implications for Teachers' Practice and Future Research

There is a case to be made for the increased use of the tools of the WBSSC for fostering social presence. The Elluminate *Live*™ environment is robust and could support a variety of methods for teacher-student, student-student, and student-teacher interactions. Students relied on a single tool: DM, for their communication needs.

Teachers might want to discover how to harness the students' adeptness with this tool. Students have a comfort and an interest in DM which carries over from the MSN and ICQ social communities. The question arises as to how this comfort level could be harnessed for instructional purposes by the teachers. What types of activities could be incorporated into the day-to-day content delivery that would make full use of the students' abilities? Is it a question of the teachers' control or moderation of the use of the tools? And, what rules and guidelines do the teachers need to establish regarding the use of DM in WBSSC's? These are questions that might be explored by researchers in future studies.

Not only are there implications for the use of DM, but also for the other tools that could be used for communication. Teachers might wish to examine their methods of delivery and their own use of the tools to discover why the two-way audio and the WB are not exploited to more explicitly promote social presence. The teachers indicated that the two-way audio could promote emotion, feeling, and mood through the conveyance vocal qualities, but teachers were the predominant users of this tool. Promoting greater student access to this tool would provide the unconstrained interaction time referenced by Stacey (2002). Making specific pedagogical choices concerning the integration of all tools, and focusing on creating a diversity of activities which use those tools could encourage the tools use by the students, which could then impact the level of social presence.

The WBSSC operated in much the same fashion as the traditional face-to-face classroom. Teachers behaved in the role of "sage on the stage" rather than that of

facilitator, as has been suggested in the literature (Doolittle, 1999). This "sage" type of classroom functions on the assumption that the teacher will control the direction of the session, a mandate that would preclude student control of resources or a share of instructional time. It would also mean that the digression and the social discourse that is so valuable to the manifestation of social presence would not be as predominant. Making pedagogical choices about the conduct of the classes and ultimately, consideration about the roles of the teachers and students might impact the manifestation of social presence. Students did not have a leading role in the WBSSC. Making allowances for the students to have a greater responsibility in the classroom, and adjusting the role of the teachers could potentially enhance social presence.

Much of the student expression of emotion, interaction with the teacher and their peers, and establishment of presence, came about as a result of digressions during discussion. Digression exposed the personal side of the teachers and revealed personality and personal interests. Self-disclosure and revealing personal interests has been identified by Rourke et al. (2001a) as an indicator of social presence. Teachers might want to concentrate on, and encourage the use of, digression in the WBSSC. Teachers revealed that they thought digression was important to establishing connections and establishing social presence. A more defined role for digression might support greater social presence. Much of the digression in the WBSSC was spontaneous. Spontaneity created the impression of an environment that was immediate, real, and real-time. Text-based environments have been criticized for the lag in communication and delays in response

times. Because spontaneity seems to be important, active teacher promotion of digression might improve the level of social presence.

Issues were identified from this study which might be considered in future research. Whereas Rourke et al. (2001a) validated their instrument through statistical means, the revised instrument used in this study was not validated as a means of assessing social presence in the WBSSC. As well, a statistical measure of social presence called the "social presence density" was obtained by Rourke et al. (2001a) by calculating occurrences of the indicators in transcripts of discussion postings. Consideration might be given to examining the efficacy of the instrument used in this study in evaluating social presence in the WBSSC through the measure of social presence density in recorded synchronous sessions. Students used synchronous chat to establish connections with teachers and peers, and to establish social presence. Future research might focus on the examination of online secondary teachers' perceptions of and reactions to the types of interaction and communication that take place through students' use of DM within their courses.

Spontaneity and digression were significant in the establishment of social presence. Future research might examine the importance of spontaneity in providing a sense of reality in the classroom. Studies might also be undertaken to examine the relationship between the amount of time spent on task-oriented discourse and the manifestation of social presence in the classroom. This study did not focus on differences between and across courses taught in the WBSSC. Consideration might be given to studies that examine the differences in the manifestation of social presence between

courses. The willingness of a teacher to engage in behaviors that fostered social presence appeared to impact social presence. Studies might also be undertaken to examine the types of behaviors that promote social presence. Lastly, the perceptions of students were not examined in this study, although they played a large role in the establishment of social presence in the classroom. Studies might examine the perceptions of students on their role in developing social presence.

6.5 Conclusions

It was not the purpose of this study to assess the effectiveness of the instrument in assessing social presence, but comments need to be made about the limitations of some of the categories and indicators used in the instrument. Two categories: The Interactive Category and Social Responsiveness Category were limited in their usefulness for assessing social presence. Rourke et al. (2001) used the Interactive Category to assess text-based discussion group postings. The asynchronous discussion group supported features such as the ability to reply to messages, message forwarding, and a subject line which could reveal details of what was posted. The DM, although text-based, did not have those features, and consequently, indicators such as quoting from other's messages, continuing a thread, and referring explicitly to other's messages were not useful. The social responsiveness category was used to detect participants' interaction with the medium and also proved to be of limited use in assessing social presence. Students or teachers were rarely observed interacting with the medium in a manner described in the description of the instrument, and there were too few instances to rely on that category as an indicator of social presence.

It was difficult to gauge the level of social interaction that took place during certain periods of the web-based synchronous sessions. The recorded classes were limited, in many cases, to the delivery of content in class which often precluded the first five, or the last five minutes of class time. That period of time was where some of the socializing took place outside of content delivery. Those periods of interaction were not captured which left a gap of observations of the classroom. Teachers would have a brief session of conversation with the students and then start the recorded session. It was likely that some of the social and affective teacher-to-student, student-to-teacher, and student-to-student discussion that took place was not recorded and therefore, not observed in the context of the classroom. Instances of social presence were witnessed through the affective responses that were exchanged. Observations of classes in situ might reveal a more diverse set of interactions, stronger sense of group cohesion, and more extensive manifestation of social presence than what was revealed in the findings of this study.

This study found that teachers and students manifested social presence in different contexts, and using different tools. Teachers manifested social presence in the context of task-oriented interaction, students in the context of digressions. Both groups relied on specific tools to communicate with teachers relying on the two-way audio and students showing a reliance on DM. Observations of teachers' interactions with students revealed that their behaviors and role in fostering social presence differed from their perception of their role. The WBSSC is an environment that contains a diverse set of tools that support teacher-to-student and student-to-student interaction. There was considerable evidence of the manifestation of social presence based on the categories and indicators contained in

the revised instrument. However, issues such as teacher control of tools, reliance on specific tools for communication, the conventions of communication, and the promotion of the use of the tools through pedagogical choice were noted as having an impact on the manifestation of social presence in the WBSSC.

Implications for professional development were suggested which included establishing rules and guidelines for the use of the tools, and learning how to harness the students' comfort level with the tools for instructional uses. Training could be provided which instructs teachers on how to better use digression, and how to better plan the deliver of content through the Elluminate *Live*™ environment so as to maximize the capabilities of the tools. Considerations for future research included the examination of the efficacy of the instrument used in this study. A second suggestion was for research which examines online secondary teachers' perceptions of and reactions to the types of interaction and communication that take place through students' use of DM within their courses.

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Appendix A

Rourke et al.'s (2001a) Instrument for Assessing Social Presence

Category	Indicators	Definition	Example
Affective	Expression of emotions	Conventional expressions of emotion or unconventional expressions of emotion. Includes repetitious punctuation, conspicuous capitalization, emoticons.	"I just can't stand it when…!!!!" "ANYBODY OUT THERE!"
	Use of humor	Teasing, cajoling, irony, understatements, sarcasm.	The banana crop in Edmonton is looking good this year)
	Self-disclosure	Presents details of life outside of class, or expresses vulnerability.	"Where I work, this is what we do …" "I just don't understand this question"
Interactive	Continuing a thread	Using reply feature of software rather than starting a new thread.	Software dependant, e.g. "Subject: re" or "Branch from"
	Quoting from others' messages	Using software features to quote others' entire message or cutting and pasting selections of others' messages.	Software dependant, e.g. "Martha writes;" or text prefaced by less-than symbol <.
	Referring explicitly to others' messages	Direct references to contents of others' posts.	"In your message you talked about Moore's distinction between …"
	Asking questions	Students as questions of other students or the moderator.	"Anyone else had experience with WebCT?"
	Complimenting, expressing appreciation	Complimenting others or contents of others' messages.	"I really like your interpretation of the reading"
	Expressing agreement	Expressing agreement with others or content of others' messages.	"I was thinking the same thing. You really hit the nail on the head".
Cohesive	Vocatives	Addressing or referring to participants by name.	"I think John made a good point." "John, what do you think?"
	Addresses or refers to the group using inclusive pronouns	Addresses the group as *we, us, our, group*	"Our textbook refers to …" "I think we veered off track …"
	Phatics, salutations	Communication that serves a purely social function; greetings, closures.	
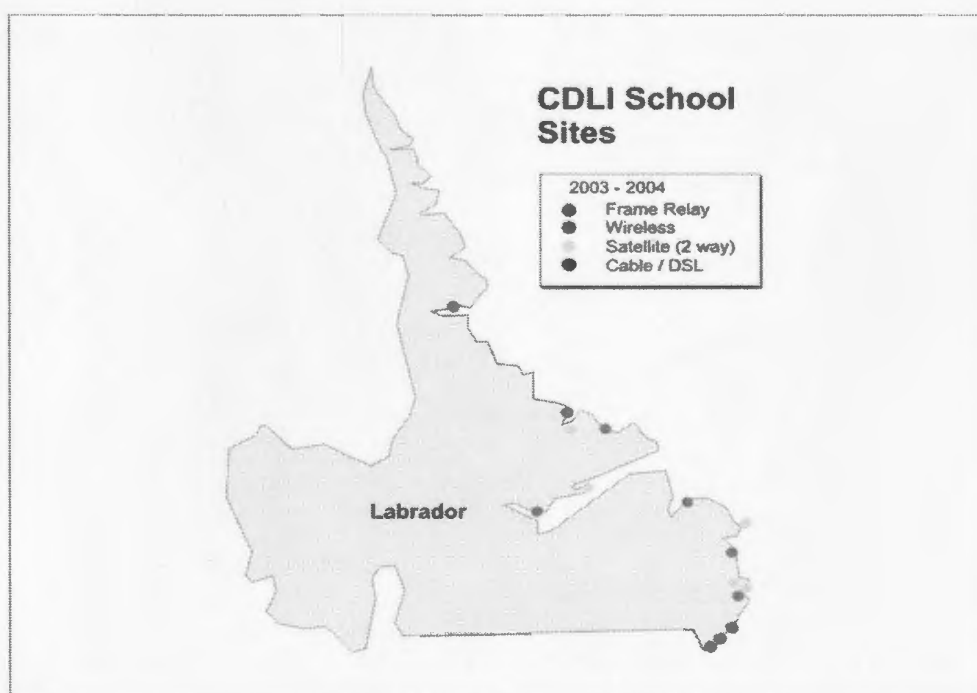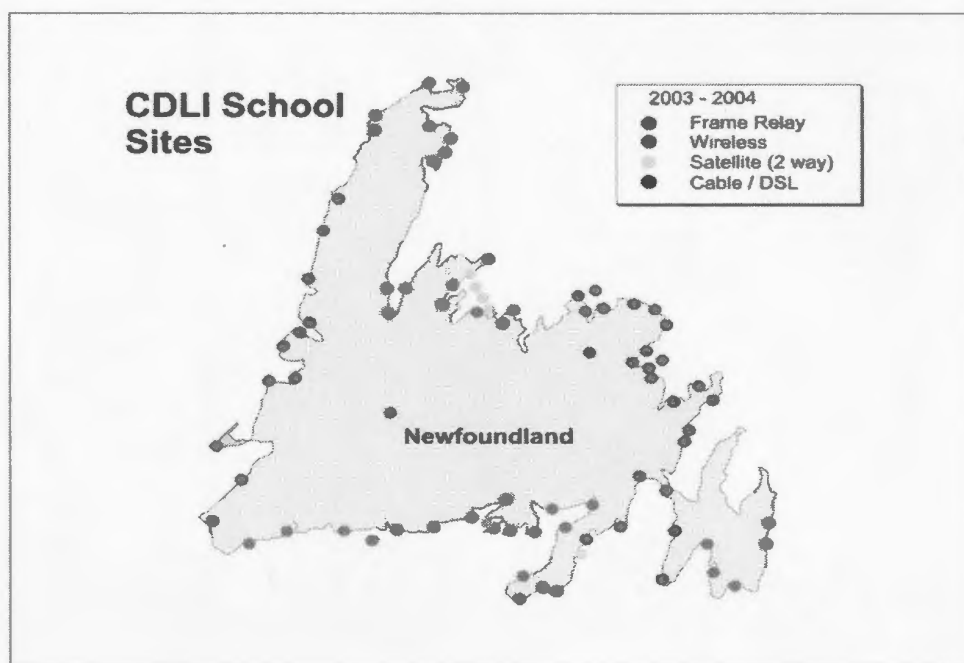
Distribution of CDLI school sites in the province of Newfoundland and Labrador. (reproduced with permission from the Center for Distance Learning and Innovation).

Appendix C

View of the Elluminate *Live™* Virtual Classroom Features.
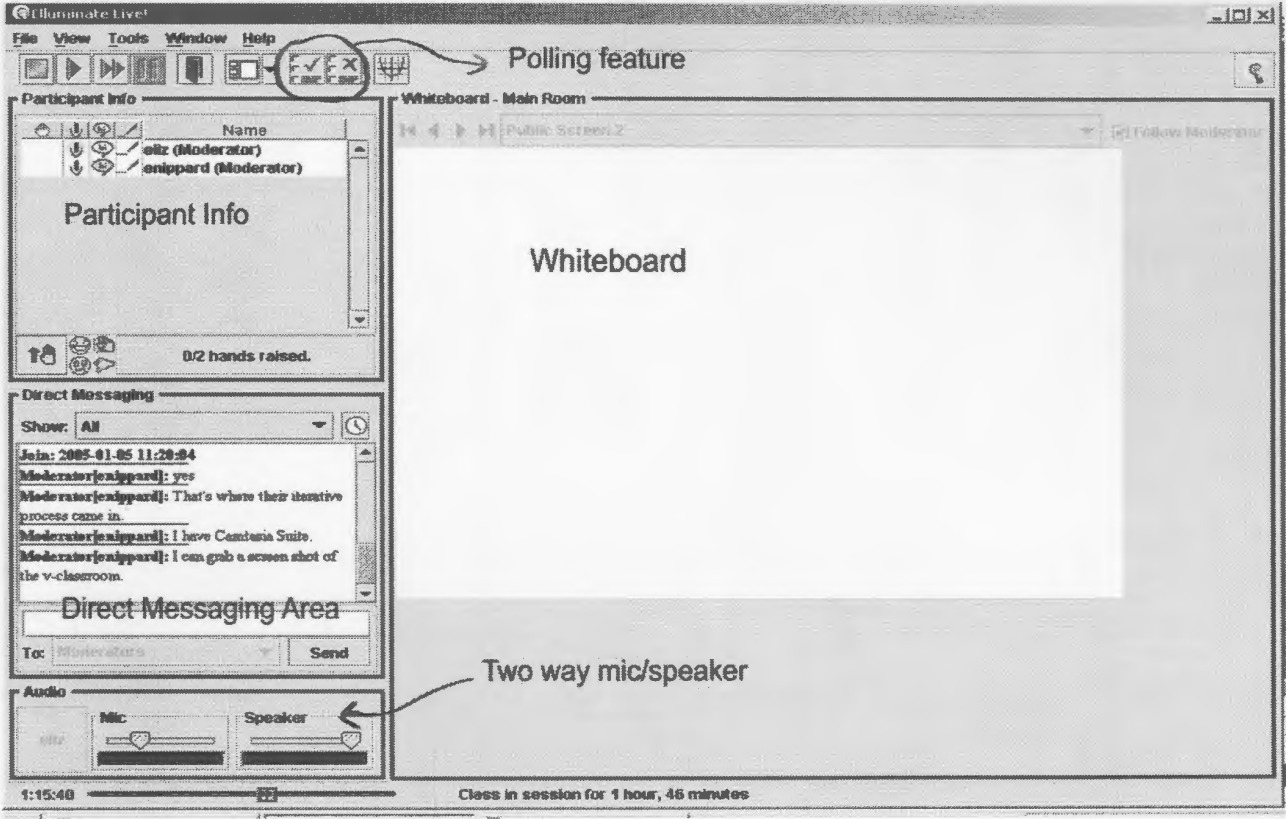
Appendix D

Listing of Subject Areas by Course and Level

Subject Area	Course and Level	
Art	Art Tech 1201	Level I
Enterprise Ed	Career Education 1101 Canadian Economy 2203 Enterprise Ed. 3205	Level I Level II Level III
French	French 2200 French 3200 French 3201	Level II Level III Level III
Technology Education	Comm. Tech 2104/3104	Level II/III
Mathematics	Math 1204 Math 2204 Math 2205 Math 3103 Math 3204 Math 3205 Math 3207	Level I Level II Level II Level III Level III Level III Level III
Social Studies	Canadian History 1201 Canadian Geography 3202	Level I Level III
Science	Biology 2201 Chemistry 2202 Chemistry 3202 Physics 2204 Physics 3204 Science 1206	Level II Level II Level III Level II Level III Level I
English Language	English 2201 Writing 2203 English 3201	Level II Level II Level III
Pilot Course Subject Area	Course and Level	
Technology Education	Integrated Systems 1205	Level I
Art Education	Art and Design 2200	Level II
Music Education	Experiencing Music 2200	Level II