

RUNNING HEAD: SOCIAL INTERACTION IN ONLINE LEARNING

Social interaction in online learning: A situationalities framework for choosing
instructional methods.

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Abstract

Online learning has emerged as one of the most important new areas for research and development in the field of instructional technology. Using fundamental learning theory developed in distance education and traditional classroom instruction situations, online learning educators (including instructional designers) are using both new, technology-enhanced instructional methods and more traditional forms of instructional methods to incorporate social interaction in their online learning environments. Prescriptive design guidance should include a discussion of the specific situationalities (learning goals, values, conditions, and outcomes) that lead to the choice of one or more instructional methods in preference to other methods. Most existing design guidance for online learning environments does not address the conditions (an important part of the situationalities) that affect the selection of instructional methods, especially for methods that engage learning participants in social interaction. Using a case survey of many descriptive case studies, interviews with selected authors, and surveys of case authors, this study develops a “situationalities framework” that describes the situationalities – learning goals, values, conditions and effectiveness outcomes – that designers should consider when designing online learning environments. Preliminary prescriptive design guidelines developed from this framework demonstrate the usefulness of the framework for the further development of online instructional theory.

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Chapter 1. Introduction and Background

Throughout the world of education and training today, the call to move instruction “online” - onto the Internet (or Intranet) – is loud and clear in many books, publications, newsletters, and conference announcements. The U.S. government Web-based Education Commission [WBEC] (2000) sounded the following “call to action” in a recent report:

Based on the findings of our work, the Commission believes a national mobilization is necessary, one that evokes a response similar in scope to other great American opportunities or crises: Sputnik and the race to the moon; bringing electricity and phone service to all corners of the nation; finding a cure for polio. ... The question is no longer *if* the Internet can be used to transform learning in new and powerful ways. ... Nor is the question *should* we invest the time, the energy, and the money necessary to fulfill its promise in defining and shaping new learning opportunity. The commission believes that we should. We all have a role to play. It is time we collectively move the power of the Internet for learning from promise to practice. (p. iii-vi)

Designers and teachers who choose to move into the online instructional environment are welcomed by manifold opportunities and challenges: a mix of both maturing and emerging technology, a growing commercial presence that provides both new technological opportunity and overblown “hype,” and an increasing number of students with a wide variety of academic, professional, technological, and personal backgrounds who are sometimes eager and sometimes reluctant to pursue learning in this new environment. This mix of challenges and opportunities can be overwhelming to educators. Where has online learning come from? What can be done to help educators and students who choose the online medium for instruction?

Online learning has emerged over the past two decades from several pre-existing education environments, including distance education and traditional classrooms (Mason & Kaye, 1989). For distance education environments, online learning provides new

possibilities for increased interaction among participants using “anywhere, anytime” asynchronous computer-mediated communications (CMC) technologies. For traditional classroom environments, online learning provides opportunities to extend learning interactions outside the classroom using CMC technologies. In both distance and classroom environments using a mix of synchronous and asynchronous technologies, teachers and students can communicate, collaborate and interact with and among each other without regard to temporal or physical location. In order to take full advantage of this increasing opportunity for learning-focused social interaction, the instructional design field requires new and revised methods of instruction (for educators) and methods of learning (for students).

With all this new technology to use in learning environments, one of the most significant tasks for instructional designers is to develop instructional theories and guidelines for practice that provide useful guidance in the effective implementation of communications technologies to help facilitate learning. In other words, new instructional theory is needed to help designers and practitioners answer the question, “What instructional methods should be used in the online learning environment in order to meet the established learning goals?”

This study provides a partial answer to this question.

Growth in Online Learning

Online learning began with the use of CMC and Internet technologies such as discussion boards, electronic mail (e-mail), and File Transfer Protocol (FTP) to provide asynchronous communication between learners and instructors, usually at a distance.

With the emergence of the World Wide Web (WWW) in the early 1990’s, online learning

changed to include large repositories of (usually static) information accessible through course websites.¹

The growth of online learning from an economic perspective is staggering. In general terms, education and training represent the U.S. economy's second largest business sector, and approximately 9% of the gross domestic product (WBEC, 2000). The U.S. corporate online learning market has grown from essentially zero in the mid-1990's to over \$1 billion at the end of 2000, and is projected to exceed \$10 billion by 2003 (WBEC, 2000). Internationally, the market for online learning is expected to grow to in excess of \$360 billion by 2003 (WBEC, 2000). If this growth pattern continues for just five years, the world market for online learning will exceed \$10 trillion dollars by 2006.

From the perspective of academic institutions, the growth in online learning has also been amazing. In 1995, over 50% of American higher education institutions reported having distance education programs in place, or were planning to implement programs within three years (National Center for Education Statistics [NCES], 1998). In 1998, Internet-based distance education courses surpassed two-way interactive video as the most popular technology in use by U.S. post-secondary schools (NCES, 2000). As well, by 1998 virtually all (97%) post-secondary instructors had access to the Internet, many (77%) used e-mail to communicate with students and approximately half (45%) used course specific websites (NCES, 2001).

¹ For the purposes of this study, I will use the term online to include the use of any Internet technology, such as discussion boards, e-mail, FTP, websites, java applets, streaming video and audio. Another term, e-learning has become common in popular discussions of online learning as well. My working definition of the term online learning encompasses the popular term e-learning as well.

Even though the use of online learning is growing, educators (teachers and instructors) are not necessarily prepared to teach online. One indicator of this is that in 1998 only one third (33%) of U.S. public school teachers reported that they were well prepared to use computers or the Internet in instruction (NCES, 2001). This same group reported that two of the greatest barriers to using this technology were time to learn how to use it effectively, and guidance on how to teach with it in their own situations (NCES, 2001).

With the continued growth of online learning all but assured, it is clear that research into online learning environments is critically important now and will continue to be into the foreseeable future. One of the key “calls to action” in the Web-based Learning Commission’s report is “Build a new research framework of how people learn in the Internet age.” (WBEC, 2000) This study is intended to provide a part of this new research framework. Most research frameworks are built upon the foundation laid by previous research agendas. In education, research on learning usually starts with a consideration of learning theory. Also, many educational researchers have been interested in social interactions among the participants in various learning environments. The following section briefly describes two of the major research areas that have addressed social interaction in learning.

Social Interaction in Learning Theory

Learning theories describe how people learn. A major development in the field of education in the past several decades is the growing discussion and acceptance of learning theories that rely, in part, on social interaction to explain how learning occurs. Two of these theories, often referred to in discussion or research of online learning

environments, are social constructivism and socio-cultural learning theory (Jonassen, Mayes, & McAleese, 19XX; Bonk & King, 1998).

In brief, social constructivism theorizes that people learn by developing (constructing) their own understandings of new concepts (knowledge) through interactions with information and other people. This occurs most effectively when learners are engaged in completing authentic tasks, meaningful problem-centered thinking, and negotiation of meaning and reflection on learning in a social (group) environment (Dede, 1995; Jonassen, Davidson, Collins, Campbell, & Haag, 1995; Jonassen, Dyer, Peters, Robinson, Harvey, King, & Loughner, 1997; Spiro, Feltovich, Jacobson, & Coulson, 1992). Gunawardena, Lowe, and Anderson (1997) show how online interaction using CMC can be used by participants as a vehicle for the co-construction of knowledge. Hedberg, Broan, and Arrighi (1997) conclude that student interactivity in online learning environments resides in both the recursive construction of knowledge and in interpersonal communications, stating, “The ultimate in interactivity is the process of knowledge construction.” (pg 57)

Socio-cultural learning theory asserts that effective learning takes place when learners are engaged in social interaction with teachers and more capable peers. Learners experience new information through these interactions on a social plane first, and gradually internalize them, building new personal knowledge as a result (Vygotsky, 1978). From this perspective, learning takes place as the learner progresses through their “zone of proximal development,” or ZPD (Vygotsky, 1978). In order for learning to occur, a learner must be challenged to perform, or think, just beyond their individual

capacity. In order to operate at this level, the learner requires some form of expert support – commonly supplied through some form of social interaction.

Vygotsky's approach to understanding learning as a social process has been used to design and implement many online learning environments that facilitate socially negotiated learning (Bonk & King, 1998). Teachers and students use online tools to work on collaborative projects, interact in thoughtful discussions, and mentor others (Althausen & Matuga, 1998; Collins, 1996; Cooney, 1998; Grabinger & Dunlap, 1996; Kang, 1998; Kirkley, Savery, & Grabner-Hagen, 1998; Zhu, 1998).

Others have used Vygotsky's ideas to push for a different type of school experience, one that focuses on meaningful dialogic interactions (Gallimore & Tharp, 1990; Tharp and Gallimore, 1988). One of the key arguments they make is that the teacher-student interaction pattern should change from one of recitation to one of participative discussion, especially in the online environment. Hillman (1999) showed that the interaction patterns in CMC courses resemble participative discussions, but the face-to-face discussions resembled recitation patterns. This finding supports the contention that online discussions can indeed be used to foster socio-cultural learning.

As online learning continues to grow, a continued emphasis on creating social learning environments online is also likely. Therefore, this study looks at many cases that use either social constructivism or socio-cultural learning theory to describe the learning goals and values in specific online learning environments.

Importance of Social Interaction for Effective Learning in Distance Education

Moore (1989) distinguishes between three types of interactions in distance education, a set of distinctions that can be directly applied to online education. Moore's

three levels of interaction are learner-content, learner-instructor, and learner-learner.

Moore concludes that educators need to design and implement an effective interaction strategy for each particular learning context, addressing each level of interaction as appropriate. This study looks at many cases that used social interaction primarily on two of Moore's levels, learner-instructor (teacher-student) and learner-learner (student-student) interactions. Other cases focused on a slightly different level, addressing group interactions involving multiple learners, instructors, and other experts.

Kitchen and McDougal (1999) studied collaborative online learning with graduate students and report that students found sharing, associating, and building knowledge together very motivating. Interestingly, Kearsley, Lynch, and Wizer (1995) report that graduate students completing a Masters degree program online have a more positive outlook towards collaboration, teamwork, and human interaction than their counterparts who complete a comparable face-to-face program. Since social interaction is valued in many learning contexts by learning theorists, educators, and students, it is important to consider how instructional methods that use social interaction can be used in online learning environments to achieve learning goals.

Need for Instructional Design Theory for Online Learning

As important as learning theory is to explaining how learning occurs, it does not provide specific guidance for instructional designers (designers) or teachers as they create new learning environments online. Instructional design theory (instructional theory) is needed, for it “offers explicit guidance on how to better help people learn and develop.”

(Reigeluth, 1998, p. 5)

The social interaction differences between learning in an online environment and learning in a traditional face-to-face learning environment are many. Common characteristics found in online learning are the physical (and geographic) separation between learners and between learners and the instructor, the asynchronicity of learning and teaching activities, and the impersonal presentation of course content (Harasim; 1990a, 1990b). These significant differences contribute to the need for instructional design theory that is specifically focused towards the online learning environment. Klemm and Snell (1995) stress that instructional design must exploit the capabilities of CMC in order to enhance online learning. As Khan (1997a) stated, “WBI (Web-based instruction) design requires careful consideration of the Web’s potential in relation to instructional design principles.” (p. 8) Instructional design fitted specifically to the online environment is critical.

Unfortunately, most studies of online learning stop short of creating design guidelines that are applicable to a wide range of learning situations.

Developing Instructional Design Theory

Instructional design theory must include two major aspects: presenting methods for facilitating learning, and providing guidance as to when these methods should be used (Reigeluth 1999). Reigeluth and Merrill (1979) and Reigeluth (1983) describe instructional methods, conditions and outcomes as the key components of instructional theory. Instructional methods refer to the approaches to facilitating learning from which a designer or educator can select – those he has the ability to change. Instructional conditions refer to aspects of the learning context that influence the effectiveness of the chosen methods and that the designer or educator cannot change. For example, an

instructional condition could be the age or ability level of the students. Instructional outcomes refer to the effectiveness, efficiency, or appeal of the instruction. Reigeluth (1999) groups instructional conditions, outcomes, and values about instruction into the category of “situationalities” – knowing when certain methods are likely to achieve desired instructional outcomes based on specific instructional conditions. When developing instructional theory, it is important to be able to describe instructional methods and the specific situationalities in which they should be used.

Several prominent educational psychologists have also argued for the consideration of “situationalities” when designing instruction or trying to understand the learning process, though they do not necessarily use the term “situationality.” Snow has argued consistently over many years of research that understanding student aptitude and creating effective instructional environments requires an acknowledgement of not only student differences, but also differences in the instructional tasks and processes, knowledge domain, instructional treatment program, specific learning situation, and learner population group (Snow, 1986; Snow, Corno, & Jackson, 1996; Snow & Lohman, 1984; Snow & Swanson, 1992). Sternberg ... [more here about Sternberg’s work]

Reigeluth (1999) further explains the characteristics of instructional theory as being probabilistic as opposed to deterministic. In other words, instructional theory should provide guidance that is likely to lead to the desired learner and instructional outcomes, but there is no 100% assurance that outcomes will be achieved. There are too many situations and variables interacting in any instructional context to completely address with any one instructional theory. This leads to the importance of instructional

values² in deciding which learning and instructional goals to pursue, which methods (among options) are chosen to attain those goals, and which criteria are chosen to assess which method works best in any given learning context.

Therefore, instructional design theories focus on design (what should be done) and offer methods that are likely to work under the specified conditions to attain given outcomes. Foundational values about learning determine the learning goals and influence the methods that will be selected based on the situationalities of any given learning environment.

Study Goals

Online learning is a rapidly growing part of the instructional landscape around the world. When considering online learning environments, it is clear that the characteristics of the environment are fundamentally different than those in traditional classroom teaching environments. It is also clear that social interaction is a very important part of many online learning environments, especially those founded upon values and goals derived from social learning theories such as social constructivism and socio-cultural approaches. There is therefore a need for instructional theory that addresses socially interactive learning in online environments. The goal of this study is to contribute to the generation of this instructional theory.

Reigeluth (1983) outlines a four-step process for developing instructional theory:

1) develop formative hypotheses, 2) develop a taxonomy of variables, including the outcomes, conditions, and methods, 3) develop principles of instructional design – cause-

² An example of an instructional value is “students should learn through cooperating in small groups.” An educator who values cooperative learning, for example, will likely choose instructional methods that incorporate small groups of students, and will probably avoid methods that rely significantly upon independent study.

and-effect relationships between variables that can be empirically tested, and 4) develop comprehensive theories and models of instructional design. This study will follow several steps in this process, but it will not attempt to create comprehensive instructional theory. Addressing step 1 of the process above, the basic hypothesis of this study is that methods of instruction that use or rely upon social interaction can be used in online learning to meet learning and instructional goals. This study will focus primarily on step 2 of this process: the development of the variables, methods and situationalities (conditions and outcomes) that are important to consider in this environment. The major result will be a situationalities framework, describing methods, conditions, goals and values for social interaction in online learning.

Study Overview

Chapter 2 is a summary of a review of the relevant literature in the instructional design and educational technology fields. This review addresses five main topics: 1) values and goals in social learning environments, 2) the basic characteristics of online learning environments, 3) social interactions in online learning environments, 4) design guidance for social interaction in online learning environments, including a discussion of specific situationalities in case studies of environments that utilize social interaction.

Chapter 2 concludes with the presentation of specific research questions.

Chapter 3 describes the methods used in the study. This study uses a case survey approach to create aggregate research based on existing literature – primarily case studies of online learning environments and courses. Three general sources of data will be used: 1) existing case study literature, 2) interviews with selected case study authors, and 3) surveys of all case study authors. Each case study will be analyzed for the values, goals,

methods (of social interaction) and conditions that affect the selection of particular methods. Interviews and surveys will be used to verify and further explore the data derived from the case study literature. Data analysis will be completed using qualitative data analysis software (such as NU*DIST) in order to determine the importance of situationalities and answer the study questions.

Chapter 4 will describe the analysis of the data and will present the study findings. Chapter 5 will discuss the study limitations and provide suggestions for further research based upon the study findings.

Chapter 2. Review of the Literature

Chapter 2 is a summary of a review of the relevant literature in the instructional design and educational technology fields. This review addresses four main topics: 1) values and learning goals in social learning environments, 2) the basic characteristics of online learning environments, 3) social interactions in online learning environments, and 4) design guidelines for social interaction in online learning environments, including a discussion of specific situationalities in case studies of environments that utilize social interaction. Informed by this review, I will conclude with a discussion of the specific research questions this study will answer.

1. Values and Learning Goals in Social Learning Environments

It is important to consider the theoretical foundation or learning assumptions of the designer (or educator), when designing or implementing an online learning environment, just as it is for any learning environment. Assumptions about learning help determine an educator's values and learning goals, which in turn influence the design of the learning environment. A review of the literature describing the essential characteristics of learning environments built upon the theoretical foundations of social constructivist or socio-cultural learning theory reveals a collection of related values, goals, and characteristics that influence the design of online social learning environments. In this review, I will include studies that represent some of the major theoretical positions in the literature.

Social Constructivist Learning Environments

There is an extensive literature describing social constructivist learning environments. Social constructivist learning can be defined as learning that occurs as

students create (construct) understandings of the world they are experiencing through interaction with others (e.g. fellow learners, experts) (Bonk & Cunningham, 1998; Cobb, 1994; Duffy & Cunningham, 1996). Social constructivist values and related learning goals (or characteristics) include the following:

- Meaningful learning - Students are meaningfully engaged in worthwhile learning activities (Brown, Collins, & Duguid, 1989; CGTV, 1992; Kearsley & Schneiderman, 1999).
- Collaborative problem solving - Learners work together to solve problems with a variety of tools and resources (Barrows, 1986; Savery & Duffy, 1996; Wilson, 1996).
- Relevance - Learning should be relevant to the student (Keller, 1979; Lave & Wenger, 1991; Savery & Duffy, 1996).
- Multiple perspectives - Learning environments should enable a student to access learning content through multiple perspectives (Honebein, 1996; Jonassen, 1991; Spiro, Feltovich, Jacobson, & Coulson, 1992)
- Collaborative reflection - Learners co-construct understandings through collaborative reflection in the context of mutual inquiry with their peers (Jonassen, 1994; O'Connor, 1998).
- Self-regulation - Learners should be expected to function as self-motivated and self-directed participants in their own learning (American Psychological Association [APA], 1995; Corno & Mandinach, 1983; Rohrkemper 1989; Schunk & Zimmerman, 1998; Wagner & McCombs, 1995).

- Community - Learners should become full participants in learning communities, or communities of practice (Jonassen, Davidson, Collins, Campbell, & Haag, 1995; Lave & Wenger, 1991; Moller, 1998; Scardamalia & Bereiter, 1994)

Many educators use social constructivist learning theory as a foundation for learning-environment and course design. The instructional methods they use, such as requiring students to work collaboratively on a significant project, are often chosen because they will help the students achieve one or more of the above goals. Another major group of learning environments is built upon the foundation of socio-cultural learning theory (defined below). Many of the fundamental learning goals or values of the socio-cultural theorists are similar to those of the social constructivists, and lead socio-cultural educators to choose similar instructional methods. Next I will describe some of the major values and goals found in socio-cultural learning environments.

Socio-cultural Learning Environments

Socio-cultural learning, whose origin is most commonly attributed to the work of Russian psychologist Lev Vygotsky, can be defined as learning that occurs as students engage in learning activities that acknowledge, and may indeed take full advantage of, the social, cultural, and historical contexts of the environment in which the students exist (Moll, 1990; Vygotsky, 1978; Wertsch, 1998). Learning takes place within a learner's ZPD, the conceptual region just beyond an individual's capability to perform (or think) without external support of some kind. In order to operate in this zone, interaction with an external agent, such as a teacher, more capable peer, or expert, is necessary. Therefore, learning is understood to be an inherently social process (Vygotsky, 1978). Vygotsky's

approach to understanding learning as a social process has been used to design and implement many online learning environments that facilitate socially negotiated learning (Bonk & King, 1998a). Socio-cultural learning theory describes values and learning goals that should guide the design of learning environments. These values and goals include:

- Student-centered - Teachers should assist students as they learn, with the focus on the learner rather than the teacher. This leads to teachers taking on the role of models, coaches, and mentors (APA, 1995; Hannafin, Hill, & Land, 1997; Rogoff, 1990; Wagner & McCombs, 1995).
- Peer collaboration - Students learn through interacting on a social plane with more capable peers. This leads to student collaboration in dyads and small groups (Roschelle, 1996; Tharp & Gallimore, 1988; Tudge, 1990; Vygotsky, 1978; Webb & Palinscar, 1996; Wertsch & Blivens, 1992).
- Scaffolded instruction - Students should only be given the minimum necessary support for learning – often referred to as scaffolding (Bruner, 1983; Rogoff, 1990; Stone, 1993; Vygotsky, 1978).
- Dialogue - Participative dialogue between students and teachers in an “instructional conversation” is critical to the learning process (Gallimore & Tharp, 1990; Tharp & Gallimore, 1988).
- Sociohistorical context - It is important to consider the historical and social aspects of the learning context when designing a socially interactive learning environment (Moll, 1990; Vygotsky, 1978; Warschauer, 1997; Wertsch, 1979).

As with social constructivist learning theory, many educators use socio-cultural learning theory as a foundation for learning-environment and course design. The instructional methods they use, such as using scaffolding methods as part of a “cognitive apprenticeship” approach to teach new complex cognitive skills, are often chosen because they will help the students achieve one or more of the above goals.

These two learning theories, social constructivist and socio-cultural, provide learning goals and values that many online learning environments achieve or fulfill, and many studies use terminology from one or both theories to describe specific online environment designs. Next, I will briefly describe several of the most important general characteristics of online learning environments. A basic understanding of these characteristics will aid in understanding the methods of social interaction that have been effective in online learning environments.

2. Online Learning Environments

Online learning has emerged as a field of practice largely as a result of technological developments allowing easy and convenient asynchronous communication among learners, educators, and others (Harasim, 1990a). With the advent of CMC in the 1980's and the WWW in the 1990's, the practice of online education has far outpaced educational research and instructional theory development for online education. Online education (or online learning) can be simply defined as an educational environment that uses computer communication systems for educational delivery and interaction (Harasim, 1990b).

Harasim (1990b) describes the key attributes of online education as many to many communication, place independence, time independence, text-based, and computer-

mediated interaction. Harasim concludes that online education is a place where not only educational collaboration can occur, but also where intellectual amplification is possible. The possibility exists for learners to expand their intellectual powers “beyond what the unaided human could demonstrate” (p. 53) through social engagement in CMC environments that support both active learning and knowledge building communities. Harasim’s focus is on the use of text-based computer conferences in online education. However, in the past decade many online environment designers have created learning environments with more media (e.g. graphics, animation, video, and audio) to engage students and facilitate learning, especially since the emergence of the WWW.

Many of the learning activities and instructional methods implemented in online learning environments require social interaction among participants. The next section of this review addresses social interactions in online learning environments.

3. Social Interactions in Online Learning Environments

Many educators and learning theorists consider learning to be a largely social process (Bruner, 1990; Dewey, 1897; Hutchins, 1996; Lave & Wenger, 1991; Rogoff, 1990; Salomon, 1993; Vygotsky, 1978; Wertsch, 1997). While not all learning environments require an explicit social interaction element for effectiveness (e.g. self-paced tutorials and review guides), most online learning environments are designed to use some measure of social interaction in the learning approaches they implement.

Defining social interaction

Interaction has been described with many terms and classifications, often in very dissimilar ways. Different authors focus on dissimilar aspects of interaction or sometimes just use dissimilar terminology. Rose (1999) even goes as far as asserting that the concept

of interactivity in the instructional technology literature is “a fragmented, inconsistent, and rather messy notion ...” (p. 48). The variation in the literature seems to bear witness to the “messiness” of the concept of interaction. A brief look at several studies supports this view.

Wagner (1994) takes a systemic approach in her development of a functional definition of interaction. She includes the contexts of instructional delivery, instructional design, instructional theory, and learning theory in her attempt to establish conceptual parameters for the function of interaction. Abrami and Bures (1996) describe asynchronous, non-face-to-face interactions as “asocial” in general, but also consider collaborative interactions among students as essential factors in successful distance education. Interestingly, Abrami and Bures acknowledge the importance of the collaborative interactions among students, yet they still describe the interactions as “asocial.” Feenberg and Bellman (1990) describe the importance of “social factors” in designing distance learning environments that use CMC technology. They consider the design of the social environment in distance learning as comparable in importance to the interior design of a face-to-face learning environment, meaning that the effort an educator takes in designing a classroom environment for social interaction (e.g. chairs arranged in small groups for collaboration or in a large circle for class discussion) should also be taken by an online educator. This may mean creating a unique virtual space for each collaborative group in a class, or creating a common discussion space for a whole-class discussion.

Gilbert and Moore (1998) describe an “interactivity taxonomy” for web-based learning environments, developed along the two factors: social interactivity and

instructional interactivity. Gilbert and Moore use this taxonomy to help choose which technological tool is the best fit for an instructional situation, given the educator's desired levels of social and instructional interactivity and each available tool's "interactivity affordances" or features. Walther (1996) posits that CMC technologies support impersonal, interpersonal, and "hyperpersonal" communication interactions. Walther describes hyperpersonal interactions as interactions with heightened levels (feelings) of intimacy, solidarity, and liking, which cannot be achieved through face-to-face interactions but can be experienced through CMC facilitated interactions. Yacci (2000) defines interactivity with four major attributes: the existence of a message loop, the completion of the message loop from the learner's perspective – *from* and *back to* the learner, the provision of both content learning and affective benefits, and the need for mutually coherent messages in each interaction. Yacci points out the need for a common definition of interactivity, and provides the structural process definition as a starting point for future research.

In this study, I define social interaction simply as "intentional communication between two or more participants in the learning environment."

Importance of social interaction for effective distance learning

Social interaction in online learning is consistently shown in the literature to be extremely important for effective learning in most learning environments. Gunawardena and Zittle (1997) show that the degree to which a person is perceived as "real" in CMC, a concept also referred to as social presence, is a strong predictor of satisfaction in distance education. Moore (1992), in a study of the general distance education environment, describes the transactional distance between instructors and learners as a function of

dialogue and structure. Increasing the amount of dialogue between instructors and students can lead to a smaller transactional distance and more effective learning. In a study comparing online collaborative project teams with face-to-face teams, Trentin (2000) identifies interaction among all participants as a key contributor to overall measures of educational quality.

Several studies report that the greatest determinant for student judgments as to whether an online course is better or worse than a face-to-face course is the amount of interaction between student and instructor and among students (Hiltz, 1995; Abrami & Bures, 1996). Hiltz (1995) also reports that if an instructor can facilitate meaningful, engaging cooperative group experiences online, students are likely to experience a greater sense of interaction than in a traditional face-to-face course. Previous literature reviews have focused: (a) on the building of effective interaction in distance education (Flottemesch, 2000), where online education is included only as a minor component in the reviewed research, and (b) on the use of student interaction of both a social and informational nature in online learning (Liaw & Huang, 2000). Both reviews conclude that increasing the amount of interaction among students leads to improved learning.

Levels and types of interaction

Bonk and King (1998b) present a five-level taxonomy of online interactions that emerged from their work with online collaborative writing techniques. The levels, in order of increasing complexity, include: 1) e-mail, 2) asynchronous discussion boards, 3) synchronous brainstorming (chat), 4) real-time collaborative text (live, shared document), and 5) real-time multimedia/hypermedia collaboration. This taxonomy is useful because it includes more than just text-based interactions and organizes the various interactions by

depth and not just amount of interaction. Many other studies assert that using an appropriate mix of synchronous and asynchronous communication tools and fostering a sense of community are important considerations for the designers and implementers of interactive online learning environments (Harasim, 1990b; Hiltz, 1986; Levin, Kim, & Riel, 1990; Romiszowski & Mason, 1996; Zimmerer, 1988).

Moore (1989) distinguishes among three levels of interactions in distance education, a set of distinctions that can be directly applied to online education. Moore's three levels of interaction are learner-content, learner-instructor, and learner-learner. Moore concludes that educators need to design and implement an effective interaction strategy for each particular learning context, addressing each level of interaction as appropriate. This section of the review focuses primarily on two of Moore's levels, learner-instructor (teacher-student) and learner-learner (student-student) interactions, and adds a third component focusing specifically on group interaction. Learner-content interactions are not addressed because they do not directly contribute to the development of design guidance for social interaction in online learning.

Teacher-Student Interaction

Teacher-student interaction refers to interactions that occur between a teacher and a student. Teacher-student interactions have been, perhaps, the most researched and emphasized social interactions throughout the history of formal education. The educational literature, even in the nascent area of online learning, includes many studies that have reported on characteristics of this level of social interaction. With the availability of an overwhelming amount of information in the online environment, it is critical that teachers actively assist learners to prevent them from becoming "lost in the

hyperspace universe” (Hill, 1997). Using both synchronous and asynchronous communication tools in a learning environment designed with interaction in mind, Ahern and Repman (1994) show that the level of teacher-student interaction is increased when effective discussion methods, such as using a graphical discussion interface that displays links visually between messages, are implemented. Several studies show that the instructor can increase interaction by requiring the participation of students, continuously encouraging student participation, and taking the discussion role of peer-participant instead of the traditional instructor-evaluator (Dutt-Doner & Powers, 2000; Harasim, 1990a).

In a study of a graduate course in information systems, Zhang (1998) reports that e-mail was the preferred method of communication between students and the teacher, even though many other modes were available. Apparently, merely providing multiple interaction modes is not enough to ensure their effective use. One study that describes some of the problems experienced when using asynchronous CMC reports that both teachers and students can be frustrated when trying to keep up with large numbers of messages (Hara & Kling, 1999).

Several studies have shown that teachers need to become aware that within CMC environments, it is very important to structure the varied activities and student experiences to assure effective learning (Ahern & El-Hindi, 2000; Muirhead, 2000). Using conferencing software designed to support collaborative discourse in multi-voiced environments, Ahern and El-Hindi (2000) show that online interactions designed to incorporate features similar to traditional classroom discussion, such as having a focused purpose, connecting related thoughts in the discussion, encouraging democratic

participation, and keeping group size small (up to six members), were especially effective. Another study reports that the style of discourse chosen by the instructor is perhaps the most important factor in determining the amount of student participation in an asynchronous conference (Ahern, Peck, & Laycock, 1992). An important conclusion of several studies of teacher-student interaction in CMC environments has been that basic conferencing software may not be able to support teacher-student interactions as well as software specifically designed to structure these interactions (Ahern & Repman, 1994; Duffy, et al., 1998; MacKinnon, 2000). Either the software must be redesigned, or the course discussion dialogic structures must be carefully designed to facilitate more interaction.

Student-Student Interaction

Student to student interaction is often de-emphasized as teachers plan instruction. Johnson and Johnson (1985) compare cooperative, competitive, and individual interaction patterns among students and conclude that the most effective interaction strategy is usually cooperative. Other interaction strategies may be appropriate for other instructional situations, and the authors stress that student-to-student interaction should be specifically designed into the learning experience, and not be forgotten or ignored. In one study, Marttunen (1998) reports that in an e-mail-based student discussion designed to provide a forum for argumentation, student-led e-mail groups tended to be more argumentative than tutor-led groups. A more argumentative discussion led to more student-student interaction, and as a result, more learning was taking place in the student-led discussion group than in the tutor-led group.

In another study of student-student interaction (Ahern & Durrington, 1996), students were reluctant to post messages in a large CMC conference when they were personally identified with the post. However, under the protection of anonymity, students posted messages five times as long and spent ten times as much time visiting the class discussion board. An implication of this study is that it is possible students may be more willing to post when interacting in smaller groups, especially when anonymity cannot be provided. This is important because most online learning environments do not provide an option of student anonymity.

Group Interaction

In general, group interaction occurs among more than two participants in a learning environment, usually among students, but may also include teachers or other experts in certain situations. Berg (1999) describes how assigning students to teams helped create a successful learning community in an online learning environment in higher education. Several other studies report cases where students work with a group of peers, mentors, instructors, and more advanced students. Graduate students teamed up to mentor undergraduates using a case-based conferencing system in an online educational psychology course (Bonk, 1998; Bonk, Daytner, Daytner, Dennen, & Malikowski, 1999; Dennen & Bonk, 1999). As part of a graduate course in educational psychology, graduate students were each assigned one undergraduate student in an undergraduate educational psychology course whom they would mentor throughout one semester. The undergraduate student's work was posted online, linked directly to a CMC discussion focused specifically on their work. Throughout the semester, peers, various instructors, and their assigned graduate student commented on the student's developing coursework.

Bonk and associates found that the mentoring that took place was very helpful to the undergraduate students, with the feedback from “experts” – graduate students and instructors – judged to be of higher quality and more effective than that of the peers.

Many other studies also report successful implementations of group interaction methods in online courses. Dutt-Doner and Powers (2000) report on the use of a newsgroup among elementary pre-service teachers to support their discussions of classroom management, making small group decisions, and providing emotional support to one another. These researchers used student-directed discussions to create an environment that encouraged active student participation. English and Yazdani (1999) report that creating a course structure that requires cooperation, exploration, and mutual construction of ideas can lead to effective group interaction at a distance. They found that course designs that did not require group interaction did not generate interactive learning environments. McDonald and Gibson (1998) explored the dynamics of CMC group interactions and found that they were consistent with classic group interaction theory (developed without regard to interaction setting). They found that an online environment using CMC can provide the group members’ interpersonal interaction needs of inclusion, control, and affection, enabling the students to form themselves into cohesive, functioning groups. Nonis, Bronack, and Heaton (2000) report that it is important to use “facilitative structures” such as adequate technical support, an openness for students to share personal experiences, allowing student discussions to evolve naturally, and communicating clear expectations of discussion quality and participation. Learning environments that include these structures support peer dialogue and group interaction that is meaningful, satisfying to students, and educationally valuable.

Kearsley, Lynch, and Wizer (1995) report that graduate students completing a Masters degree program online have a more positive outlook towards collaboration, teamwork, and human interaction than their counterparts who complete a comparable face-to-face program. Interestingly, Kitchen and McDougal (1999) report that graduate students in a collaborative online course found that sharing ideas, associating with each other, and building knowledge together were very motivating. However, some students did not take full advantage of the collaborative opportunity. Therefore, Kitchen and McDougal emphasize that there is still a clear role for the instructor in facilitating student collaboration.

Many authors have reported success in using social interaction methods in online learning environments, in many different situations, with various types of learners, to accomplish a variety of learning goals. The question remains, however, as to when and how an educator should design an online environment to include instructional methods that require social interaction. For example, given that an educator would like to incorporate collaborative student groups in their online course design, what methods of social interaction should be chosen? Which methods should not be chosen? For the chosen methods of social interaction, what are the conditions necessary to attain an effective learning experience? Comprehensive design guidelines should be able to provide guidance to educators as they try to answer questions like these. The next section of this review explores the literature that describes design guidelines for social interaction in online learning.

4. Design Guidelines for Social Interaction in Online Learning Environments

Instructional design guidelines, fitted specifically to the online environment, can help educators implement online learning effectively (Khan, 1997a). Unfortunately, most design guidelines offered in the literature suggest various methods (or techniques) that can be used to meet specified learning goals or values while offering little or no discussion of the situationalities (conditions and outcomes) that affect the effectiveness of these methods. This section of the literature review considers several sets of guidelines for online learning, first a review of two collections of papers in edited volumes and then a review of several individual papers, followed by a discussion of specific situationalities reported in descriptive case studies.

Edited volumes

One of the first books published on the use of CMC in online learning, Mindweave: Computers, communication and distance education, includes some of the first academic descriptions of online learning (Mason & Kaye, 1989). Most of the chapters (papers) focus on the use of CMC to enable graduate and professional seminars asynchronously at a distance (Davie, 1989; Harasim, 1989; Kaye, 1989). Taken as a whole, these papers offer insightful descriptions of how CMC discussions can be used in education, how educators can facilitate online seminars effectively, and how the constraints of the overall system (technological, graduate program, new online roles, etc.) can impact the use of online discussions. However, while generally helpful, these early descriptions and basic guidelines do not address situationalities that might be important to specific implementations in online learning.

The book, Web-based Instruction, (Khan, 1997b) includes many case studies of individual online learning environments. As well, the book includes several studies reporting overall design guidelines for using a variety of social interaction methods to meet learning goals. These studies include discussions of the emerging roles for instructors and learners (Shotsberger, 1997), the effective dimensions of interactive learning (Reeves & Reeves, 1997), designing web-based instruction for active learning (Bostock, 1997), and creating learner-centered web instruction for higher-order thinking, teamwork, and apprenticeship (Bonk & Reynolds, 1997).

Shotsberger (1997) offers several general considerations for educators, such as using a combination of both synchronous and asynchronous methods and fostering a sense of community. In Shotsberger's online system, students are assigned to small collaborative groups and required to spend one-half of their "classtime" in synchronous interaction using a chat system. Asynchronous discussion space is provided for groups to use as they want, with no specific class participation requirements. This discussion space is used by groups as they complete collaborative projects. The sense of community is enhanced, according to Shotsberger, when students have a variety of interaction modes available, when students understand the instructional goals and strategies of the learning environment, and when students feel they can impact the design of the environment as the course progresses (necessitating a flexible environment design). Unfortunately, Shotsberger does not offer generally useful guidelines for determining the appropriate mix of synchronous and asynchronous methods for particular learning environments, nor does he give specific conditions that affect decisions regarding design issues influencing the formation of online community.

Reeves and Reeves (1997) propose a model of web-based instruction that includes ten dimensions of interactive learning. The ten dimensions include pedagogical philosophy, learning theory, goal orientation, task orientation, source of motivation, teacher role, metacognitive support, collaborative learning, cultural sensitivity, and structural flexibility. Reeves and Reeves provide the model to support the design of learning experiences that take advantage of the unique characteristics of, and pedagogical opportunities presented by, web-based instructional environments. This model provides a descriptive tool to help educators understand a specific online environment in terms of the ten dimensions, but does not include any discussion of the conditions that affect the design of the environment. Bostock (1997) proposes a design emphasis on making the learning environment as active as possible, describing five principles for the use of technology in online learning environments. These principles include the use of data resources, productivity and web-publishing software tools, simulations and programmable models, tutors (both technological and human), and communication through e-mail and CMC. Unfortunately, Bostock does not provide a discussion of the conditions that should be considered when implementing these principles. Finally, Bonk and Reynolds (1997) presents thirty methods that educators can use to implement learner-centered online education, classified into three distinct categories of techniques: creative thinking, critical thinking, and cooperative learning. While useful as a “toolbox” of methods, there is unfortunately no discussion of the conditions that affect the decision to choose one or another method.

Individual papers

Hill (2001) and Hill and Raven (2001) address the learning goal of building online communities of learners, a goal that requires substantial social interaction. Many instructional methods for community building on the Internet are recommended, including creating a failure safe environment for discussion, encouraging a spirit of adventure, providing structure and organization to help participants manage large amounts of information, and using “connection” messages to create and maintain interpersonal relationships. As with most of the other studies reviewed, there is very little discussion of the conditions of the learning environment that may affect when to use each of these methods. Klemm and Snell (1995) stress that instructional design must exploit the capabilities of CMC in order to enhance online learning, and provide four design principles for teachers: specify detailed participation and discussion objectives for a conference, create a logical structure for the conference to implement instructional strategies, use team learning approaches whenever possible, and remain actively engaged in the conference. Berge (1999) provides a comprehensive summary of the types of online communications (interactions) factored by the level of student performance desired, as well as a discussion of various interactive media (e-mail, video, CMC, etc.) and how they should be selected based on a scale of interaction and synchronicity. This summary highlights the challenge instructional designers face as they design online learning environments for interactive learning, but does not structure its guidance with regard to the type of learning, targeted learning goals and values, or other contextual situationalities. Hughes and Hewson (1998) suggest several methods of social interaction commonly found in face-to-face classrooms that can also be used in an online learning

environment: participating in formal discussions, teacher questioning with wait time, group brainstorming, quizzing, and informal peer discussions and work groups. Hughes and Hewson (1998) do not offer any discussion of situationalities that affect the use of these interaction methods.

Many other papers report findings that include guidelines for interaction in online environments, but none of them includes a comprehensive discussion of the situationalities that affect the effectiveness of the social interaction methods they recommend (Beaudin, 1999; Harmon & Jones, 1999; Kimball, 1995; Northrup, 2001; Rossman, 1999). One of the few papers that report conditions affecting the choice of social interaction methods is Nonis, Bronack, and Heaton (2000). This paper describes conditions that affect the design of effective online discussions. These conditions include the level of preparation of students to use the technology needed to implement social interaction methods, the amount of “likemindedness” among participants as to the overall purpose of the discussion, the degree of participants’ awareness of the essential attributes of online discourse (such as convenience, familiarity, accessibility, meaningfulness, and focus), and the presence of facilitative structures that address environmental, social, and motivational issues and expectations. These facilitative structures include providing a professional context that generates relevant discussion topics, allowing for personal expression and relating personal experiences, supplying adequate technical support, using a trained (and accessible) moderator to facilitate discussion, creating the sense of the instructor as co-participant rather than as the center of attention and discussion, and explicit, early communication of expectations concerning the length and quality of message posts and the amount (frequency) of student participation. While Nonis and

associates provide a helpful discussion of several important conditions, they do not provide a comprehensive set of design guidelines and do not address methods of social interaction beyond the use of online discussions.

Even though most of the explicit design guidance in the literature does not include an explicit discussion of situationalities, this information can be found through a careful analysis of descriptive case studies. Next, I will address social interaction methods and situationalities that can be found embedded within descriptive case studies in the instructional technology literature.

Situationalities in case studies

Reports of specific situationalities (values, conditions and desired outcomes) that are important to consider when choosing methods of social interaction can be found in many case studies. Often, a case includes a discussion of the particular conditions of the learning environment that influenced design decisions regarding social interaction methods, and how those conditions affected the instructional outcomes. In order to determine the situationalities in a case report, it is necessary to identify the instructional methods, along with the instructional goals, values, and conditions of the learning environment that affect the effectiveness of these methods.³ A brief discussion of a sample case follows. This case was chosen because it is typical of many descriptive case studies in the literature.

Sample case

Zhang (1998) describes the online learning environment of a graduate level course in information systems analysis and design. In the case, Zhang describes the social interaction methods used, the overall learning goals and values, various instructional

conditions that affected the effectiveness of the chosen interaction methods, and overall indications of effectiveness. The methods and situationalities (values, goals, and conditions) are summarized below.

Situationalities

Values

1. Discovery learning
2. Learner-centered education
3. Enforcement - instructor retains some control

Learning goals

1. Students learn how to work collaboratively on projects.
2. Students learn how to participate in peer evaluation.
3. Students learn how to choose specific social interaction methods from a range of options.

Methods, conditions, and effectiveness

1. Method -- Provide a space for students to create their own web pages in order for them to share information and exchange files with other students.
 - a. Effectiveness – Only the students with the requisite skills were able to use student-created web pages to exchange files among collaborative group members.
 - b. Conditions – Students need to know how to create their own web pages using HTML programming language or web page creation software such as Netscape™ Composer.
2. Method – Provide a class file transfer protocol (FTP) site for file exchange.

³ The method of case selection and analysis is described in detail in Chapter 3, Methods.

- a. Effectiveness – FTP was not used by students to exchange files among themselves, but was useful to the instructor as a way to distribute and collect a class survey.
 - b. Conditions – Class participants do not share the same e-mail client and cannot reliably download files from a website. This method is not recommended if simpler file sharing options (such as websites with download links or common-format e-mail attachments) are available.
3. Method – Use Internet Relay Chat (IRC or chat) in project groups for group coordination, clarification and decision-making.
- a. Effectiveness – The students who used IRC were able to coordinate group decisions successfully. However, only a small number of students used IRC; the rest chose to coordinate all group communications and decision-making through other means, primarily e-mail. Additionally, as the number of students in the chat increased, communication became less effective and harder for students to control.
 - b. Conditions – Students must have skills in discussion control and IRC client use.
4. Method – Students use e-mail to turn in assignments and coordinate group project work.
- a. Effectiveness – E-mail was the most popular form of interaction. However, the overuse of e-mail can quickly generate a huge volume of e-

mails to which the instructor (and other students, in some cases) must respond.

- b. Conditions – The number of students and assignments must be small in order to keep the volume of e-mail at a manageable level.

5. Method – Broadcast course announcements via listserv (automated e-mail list).

- a. Effectiveness – This method was more effective than posting announcements to the class web page because students checked e-mail more frequently than they visited the class web page.
- b. Conditions – Students must be able and willing to check e-mail regularly.

Situationalities in other cases

Other cases report many other methods and associated conditions. Several of these situationalities are listed in the tables below.⁴ The listing presents situationalities in method-condition pairings, grouped by case study. Included here are the situationality tables for two case studies.

Case report: Poole, 2000

| Method | Condition |
|--|---|
| Access to all online interaction methods is through a course website. | Students must have ready access – home computers are recommended. |
| Chat is provided for small group collaboration. | Students must be familiar with chat, otherwise they will choose e-mail. |
| Students are required to moderate the class discussion (online) for one week. Students are given training in moderator skills. | Students must be willing and able to assume the moderator role. |

⁴ A complete list of the situationalities found in all the cases selected for this research will be included in Chapter 4.

| Method | Condition |
|---|--|
| Use student-centered discussions to motivate participation. | Instructors must be willing to assume new teaching roles – on the side rather than in front of everyone. |
| Establish trust in class interactions in order to build a learning community. | Participants must be willing to use their real identities –the use of a fictitious student antagonist to provoke discussion participation and present alternative perspectives violates student trust. |

Case report: Bourne, McMaster, Rieger, & Campbell, 1997

| Method | Condition |
|--|--|
| Use a class discussion forum for common student questions and instructor answers. | Students must have ready web access if questions will not be answered via e-mail. |
| Create private online workspace for project teams. | Co-located students must be willing to meet in the online workspace, or many may choose to meet face-to-face instead. Students must be willing to use team discussion areas instead of e-mail. |
| Include an expert mentor on each project team. | Sufficient mentors must be available, accessible by project teams, and willing to participate within the resource (\$) constraints of the course. |
| Encourage peer to peer learning through peer assistance. | Students must be willing to help their peers for the rewards available within the course's motivational system (e.g. extra credit). |
| Each student creates a publicly accessible web page (website) with their class work and picture. | Students must be amenable to publicly displaying their image and efforts. |

In summary, in order to develop and implement successful learning in an online environment built upon social learning theory, it is important for educators and instructional designers to understand the types of social interactions that one might use effectively, along with the situationalities for using each. In most of the instructional technology literature, the existing design guidance for social interaction in online learning does not include a discussion of situationalities that affect the effectiveness of

instructional methods. However, a focused reading of descriptive case studies reveals that many researchers do include discussions of instructional methods and situationalities, though they often do not use this terminology. A systematic survey of descriptive case studies of online learning environments may result in a comprehensive list of instructional methods that use social interaction and related situationalities affecting their effectiveness.

5. Research Questions

The bulk of this review considered learning-focused social interactions in the online environment and instructional implementation guidance found in the literature. While there is much in the literature about online learning environments and the instructional use of social interactions in online learning, a primary deficit is a consistent and comprehensive set of design guidelines that specifies which particular interaction-based instructional methods are successful in achieving a particular learning goal, and the situationalities that affect the effectiveness of the chosen method. In order to begin to fill this gap, it is important to start with understanding the methods of social interaction that have been used effectively to meet learning goals and the situationalities that affect the effectiveness of these methods.

As such, this study answers two research questions:

1. In an online learning environment, what are effective combinations of social interaction methods to use, for different conditions and values, in order to achieve specific learning goals?
2. Can these methods and conditions be arranged in a useful classification scheme in a “situationalities framework?”

The rest of this study answers these questions. The next chapter, Methods, explains the methodology I intend to use in order to answer these questions.

Chapter 3. Methods

Generating Instructional Design Guidelines

This study is an initial stage in the development of instructional design theory. In this study, I will begin the process of developing instructional design guidelines for social interaction in online education as a means to meet specified learning goals. Using post facto naturalistic case studies as my primary source of data, I will develop a “situationalities framework” that identifies the instructional methods and situationalities that are important to consider when choosing specific methods of social interaction techniques to implement in online learning. Situationalities will describe conditions, desired outcomes, and values about instruction that help an educator decide when particular methods should and should not be used. This situationalities framework can be used in the continuing development of specific guidelines for methods of social interaction in online learning.

The overall study design I am using can be summarized as a naturalistic study that combines several qualitative methods, a collective case study with instrumental features (Stake 1995). I will use multiple cases and analyze the cases in order to understand elements of each that were not necessarily the primary intent of the original author’s focus. The first specific method I will use is the case survey, a variation of a cross-case analysis and a form of aggregative research. Case surveys are used to aggregate “diverse case studies together under a common conceptual framework so that findings will be cumulative...” (Lucas, 1974). Following preliminary analysis and the drafting of an initial situationalities framework, I will use semi-structured, active interviews (Fontana & Frey, 2000; Holstein & Gubrium, 1995) with a selection of case study authors. Finally, I will

use several rounds of member-checking (Guba & Lincoln, 1981) to refine, revise, and validate my findings with case study authors.

One of the defining characteristics of a case survey approach is to choose case studies with pre-specified criteria (Guba & Lincoln, 1981; Lucas, 1974; Merriam 1988). In order to develop a situationalities framework, I will first choose twenty to thirty case studies of online learning environments or courses. Cases selected will meet criteria that have to do with publishing source, recency, inclusion of discussion about learning goals and values, social interaction methods, and the effectiveness of the methods chosen in meeting the stated learning goals and values. The criteria are explained in detail below (see Case Selection).

Once selected, I will read and analyze each case to determine four types of information, in no fixed order. First I will identify the learning goals and values that guided the design of the learning environment or the development of the course. Then I will identify the particular methods of social interaction used by the designers or participants in the case. Next I will identify conditions that the researcher(s) indicate were relevant to the selection or effectiveness of the methods of social interaction used in the case. Finally, I will look for evidence of the effectiveness of the chosen social interaction techniques in meeting the stated learning goals.

Once I've read and analyzed each case, I will use the situationalities framework described above (see Situationalities in Case Studies in Chapter 2) to organize my findings for each. Once the analysis from each case is recorded, I will synthesize the findings across and develop a tentative set of design guidelines. These guidelines will take into account the conditions under which specific methods of social interaction

should be effective in meeting specific learning goals. The summative situationalities framework and design guidelines will be reviewed with four to six case study authors chosen for their potential to provide insight into social interaction in online learning. This review is explained in detail below (see Author Interviews in the Data Collection section).

Case Selection

Cases will be selected based on a set of criteria explained below. Cases should be selected for their usefulness to the study – their direct relevance to the study questions (Stake 1995). Stake (1995) asserts that researchers should choose cases to “maximize what we can learn... pick cases that are hospitable to our inquiry ... with actors willing to comment on certain draft materials” (p. 4). Initially, cases will be selected on the basis of five criteria that have to do with publishing source, recency, the discussion of learning goals and values, a description of social interaction methods, and the presence of some discussion of the effectiveness of the methods chosen in meeting the stated learning goals and values. Each criterion is described in more detail below. As the study progresses, additional selection criteria may emerge as appropriate.

Publication Source

Published cases will be chosen primarily because they are easily accessible. In order to include a large number of cases, it is important to use completed case studies, since it would take an overwhelming amount of resources (time, money) for me (or even a sizable research team) to create all the cases as part of one study. Additionally, using published works will provide a set of studies that have met the quality standards of peer

reviewers in the Instructional Design field in general, evidenced by the fact that they were actually published. This should enhance the quality of the study findings.

Cases will be chosen from many sources. Each publishing source must use a peer review or referee system to assure the quality and help establish the reliability of the cases. The publishing sources will be chosen to include a mix of paper-based and web-based journals, conference proceedings, and books (edited volumes). Paper-based journals are readily available in local academic libraries. Online journals (e-journals) often provide cases that focus solely on online learning environments. Conference proceedings often provide more recent research reports than do published journals due to the shorter lead time prior to publication. Similar to published journal articles in quality, books or edited volumes sometimes provide additional space for an author to elaborate on a study, especially as it applies to the conceptual basis for the book. A detailed list of case study sources is provided in Appendix A.

Recency

It is important that the studies selected have had the opportunity to use recent major technologies, such as the World Wide Web (WWW), desktop video, and other communications technologies. Most studies published since 1993 report on research that has been conducted since the emergence of the WWW in the early 1990's. Even though not all online learning environments use the WWW or other new technologies, the fact that some designers have chosen not to use these newer communications technologies in their learning environment design(s) may be significant, and may contribute to the understanding of specific conditions or sets of conditions. Additionally, selecting recent literature may increase the likelihood that a research team or author is available for

follow-on interviews. In general, I will choose case studies with publication dates of 1993 or later, though in rare instances older studies may be chosen if they provide important insights into online social interaction.

Discussion of learning goals and values

Each case selected must provide some discussion of the learning goals or instructional values the design is trying to meet. Examples of learning goals and values include developing a community of learners, creating a collaborative atmosphere, providing a problem-centered learning environment, implementing learner-centered principles, creating learning teams, coaching students, and establishing cognitive apprenticeship relationships. These goals and values may be explicitly stated or may be implied in a discussion of fundamental learning assumptions. For example, a study may include a discussion of using collaborative work groups to implement a constructivist learning environment. Another case may use a sociocultural learning theory discussion or approach to frame its learning goals and values. For the purposes of his study, the specific learning goals and values are not important in and of themselves, however it is imperative that the case studies report on at least one learning goal or value that the designer(s) had in mind when creating the learning environment or course, and how social interaction techniques were used to meet this goal or value.

Methods of Social Interaction

Methods that enable or facilitate social interaction must be included as part of the learning environment or course design. This criterion is important because not all online learning environments or courses rely upon social interaction to facilitate learning. Some courses use methods of social interaction solely to meet social (non-learning) goals.

Other courses may be designed without any regard to any social interaction, since related case reports avoid a discussion of social interaction of any kind, even though it may still occur “by chance.” Yet other online environments are designed solely for individual use independent of any “other,” whether peer or tutor. Clearly, in order to develop sets of methods and conditions that may determine the effectiveness of social interaction methods, social interaction has to be addressed in every case in the study.

Effectiveness of Social Interaction Techniques

It is not enough for a chosen case just to discuss the learning goals and methods of social interaction without including an analysis of the effectiveness of these methods in reaching the learning goals of the environment. This discussion can take many forms and vary greatly in the depth of the analysis, but it must be present. For the purposes of this study, it will be important that each case addresses effectiveness of at least one social interaction method in meeting at least one of the major learning goals of the environment.

Data Collection

This section addresses three methods of data collection I will use in the study. A description of the data analysis techniques I will use follows in the next section. I will collect data from two primary sources, selected case studies from the published literature in the field, and interviews with a sample of case study authors. A third source, the entire set of case study authors, will be solicited for comments after I provide them a condensed version of my preliminary findings. First, case studies will be identified, screened and selected. After case study data have been gathered and analyzed, several case study authors will be selected for interviews as a method of confirming or clarifying findings, pursuing interesting questions that may have arisen from the case study, and providing

additional information relevant to the study. The methods that will be used to collect each type of datum are described in greater detail below.

Case studies

Once relevant cases have been selected, I will acquire a paper copy of each case. For cases available online, I may also acquire a digital copy of each case. These cases will be identified with a unique case number (i.e. C101, C102, etc.) and placed in a labeled folder with the same case number. The identifying information for each case will be recorded in a data analysis software package, such as NU*DIST for later reference and analysis.

Author Interviews

Semi-structured, active interviews with selected case study authors will provide the second major source of data for this study. Semi-structured, active interviews provide both the structure needed to ensure crucial questions are asked and issues explored during the interview, yet retain the freedom for the interview participants to explore issues that emerge during the interview itself, issues raised by either the researcher or the interview subject (Fontana & Frey, 2000; Holstein & Gubrium, 1995). Data from these interviews will be used to revise, refine, and confirm the preliminary findings developed from the case study analysis phase.

Selection of sample

I will choose the sample of authors based upon the opportunity to learn more about sets of conditions or the effectiveness of specific social interaction methods. Once again, the sample will not be chosen as a representative sample, but rather it will be chosen because these authors provide the best chance to learn more about the study issues

and will help answer the research questions. For example, the sample may include a set of authors who chose the same social interaction methods under different sets of conditions, or those who chose different social interaction methods under the same set of learning conditions, or possibly those who chose the same social interaction methods under similar conditions, but reported varying levels of effectiveness in meeting learning goals. I will make final decisions on the criteria for, and the selection of, the interview sample after all cases have been analyzed. The number of authors will be approximately five, but may be increased if necessary to accomplish the goals of this study.

Interview protocol

I will contact selected authors via e-mail and telephone to determine if they would be willing to participate in the study. If any of the chosen authors elects not to participate in the study, I will choose substitute authors that also meet the selection criteria. The setting for the interview will depend upon the location, availability of the author, and the resources (time and money) I have for travel. Ideally, the interview will take place face to face. Face to face interviews allow for extremely rich communication, including not just spoken words but also body language, verbal intonation, the direct and immediate use of artifacts and documents to further explain ideas, and the establishment of personal rapport not commonly found in impersonal communication settings (Holstein & Gubrium, 1995). In the event I am unable to coordinate a face-to-face interview with a chosen author, I will attempt to arrange a telephone interview. In most instances, interviews that cannot be accomplished either face to face or via telephone will be aborted, and a substitute author that is accessible either in person or via telephone will be selected. There may be a situation in which an author chosen for reasons extremely

important to the study (a key informant, perhaps) may not be available for interview in person or via telephone. In such a case, I will attempt to use e-mail to conduct an interview asynchronously.

Each interview should be completed in approximately one to two hours. The questions I will ask will depend upon the specific context of the study and the particular reasons the author was selected for an interview. Appendix B is a sample interview protocol form. I will use this form as a “conversational agenda” to provide an initial context to engage the topics of interest. As the interview progresses, I will decide if subsequent questions on the form are necessary or appropriate (Holstein & Gubrium, 1995, pp. 76-77). Potential interview questions include:

1. Please describe the overall learning goals you wanted to achieve in this situation.
What were the underlying learning values that guided the design of your course?
2. What methods of social interaction seemed to work the best in your situation? –
Why? Can you envision a situation in which they would not work well?
3. Which of your learning goals were met effectively with the social interaction methods you chose? Were any of your learning goals unmet? Did the social interaction methods chosen contribute to this? Can you think of any other social interaction methods that might have helped meet those goals?
4. If you could implement any method of social interaction you wanted in your learning environment (or course), what would you choose –and why?
5. In your online learning environment (or course), what are you doing differently today – and why?

6. Ask specific questions about the values, methods, and conditions in the situationalities framework – clarifying, extending, etc. (*this will be different for each interview*)

Each interview will be recorded with audiotape. The written consent of the interview subject will be gained prior to the start of the interview. Once the interview is complete, I will employ a transcriber to complete a full transcription. When I receive the transcription, I will check it against the audiotape and correct any transcription errors.

After each interview, and after reviewing its transcription, I will summarize relevant findings from that particular interview and send a written copy to the interview subjects asking them to check my findings against their remembrance of what was said in the interview. This method of member checking should make my findings stronger and more accurate (Guba & Lincoln, 1981). At the same time, using a member checking strategy will provide me with another opportunity to ask the authors for additional comments or clarification about their particular case. If appropriate, I may ask an additional question or two at this time if other interviews (or subsequent analyses) have raised interesting questions the author may be able to help me answer.

Expert Review

One final method of data collection will be used. After I have developed the situationalities framework, completed and incorporated all data analysis including member checks of interview subjects, I will send a copy of preliminary study findings to each case study author, both those selected for interviews and those not selected. I will present an abbreviated (summary) version of my entire study to date and ask for their comments, questions, and specific constructive feedback. Appendix C is a sample survey

protocol form. I am proposing this step both as a courtesy to the authors and as a way to gather additional data that will help me craft my final findings and overall conclusions to the study.

Data Analysis

In this study, data analysis will be comprised of three major efforts. The first effort is to read and identify relevant information in each of the case studies. This will include reading the study itself several times, looking for critical elements of information that will help answer the research questions. The initial analysis will be used to create the situationalities framework, which the analysis of the interview data will refine and build upon. This case analysis is explained further below. The second major analysis effort will be to analyze the interviews (audiotape and transcript, notes, and follow-up information) for information relevant to the study. A third analysis effort will be a cross-case analysis, or case survey, looking at all cases and the author interview results once again to look for important themes and common elements or patterns across all cases (Stake, 1995). The final analysis effort will include reviewing final comments and feedback received from the case study authors after I have sent them a condensed preliminary report of overall findings for their commentary. Each phase of analysis is explained in greater detail below.

Case Analysis

The first step in case analysis is to (re)read the case, identifying specific discussions of critical information—information directly relevant to the research questions. These four critical information elements, and the questions I will be asking as I read the case are:

1. Learning goals and values – What are the learning goals and values established for the environment?
2. Social interaction methods – What are the social interaction methods used in the learning environment or course?
3. Conditions of the learning environment – What are the relevant instructional conditions that affect the learning environment design? What are the conditions that affect the effectiveness of the social interaction methods used? These conditions may include the following:
 - a. Size of class
 - i. small (20 or fewer students)
 - ii. medium (21-50)
 - iii. large (>50)
 - b. Experience of instructor
 - i. Novice (first class taught online)
 - ii. Beginner (1-3 classes)
 - iii. Advanced (>3 classes)
 - c. Educational level of students
 - i. Secondary or below (K-12)
 - ii. Undergraduate (13 – 16)
 - iii. Post-graduate (Masters and Doctoral programs)
 - iv. Professional (post-secondary non-degree programs)
 - d. Technological experience level of instructor and students
 - e. Location of students relative to instructor and each other

- i. Collocated
 - ii. Mixed locations (some collocated, some distance)
 - iii. Distance (All geographically dispersed)
 - f. Synchronicity of instruction
 - i. Synchronous
 - ii. Mixed
 - iii. Asynchronous
 - g. Others TBD
- 4. Effectiveness of the social interaction methods in helping the learner meet the learning goal(s) – What methods are evaluated as effective? What methods are not effective? What values, goals, and conditions affect the effectiveness assessment? What are the measures of effectiveness the author uses to assess the instructional experience?

Information gathered from the case study while answering these questions will be recorded in the data analysis software package for further analysis. Once data from all cases have been entered, I will look for consistent findings among studies that indicate particular situationalities—conditions, goals, and values (or sets of conditions, goals and values) that play a significant role in determining the effectiveness of a social interaction method implemented to reach a particular learning goal. These findings will be used to create the preliminary situationalities framework (see figure 1).

Interview Analysis

After each interview, I will review my notes and read the full transcript of the interview, looking for comments or answers to questions that relate directly to the major

issues or themes of this study. The major questions framing my analysis will be, “What did the authors say about the learning goals and values?” “What did the authors say about the social interaction methods they used?” “What did the authors say about the effectiveness of the methods in achieving learning goals?” and “What situations (values, goals, and conditions) in the learning context seemed to make a difference with regard to the effectiveness of the social interaction methods?” I will look for other relevant emergent themes on a case-by-case basis, looking for patterns in the data indicative of an important insight. As I perform this analysis, I will identify follow-on questions to pose to the authors when I send them the preliminary interview analyses for review and comments.

Once I have completed the preliminary analysis, I will send a summary of my findings to each of the authors, asking them for clarification or further explanation of learning goals, social interaction methods, or conditions, as needed, and providing an opportunity for them to comment on the interview analysis. They may choose to offer additional insight or explanation, correct a misperception, or suggest alternative interpretations of data. This step in the analysis will provide an additional member checking opportunity. I will review any further commentary they provide, revising my particular findings for each individual interview and overall findings for the study as appropriate.

Cross-case Analysis

Cross-case analysis has been described as “casting a net” to catch many specimens (cases) of a particular species in order to examine the specimens to further understand the species (Runkel, 1990). In this study, the specimens are the individual

cases and the species is the use of social interaction techniques in online learning environments . Lucas (1974) and Yin (1994) describe this method of cross-case analysis as a “case survey.” The specific analysis across multiple cases will look for patterns across cases. In particular, I will identify common sets of conditions, learning goals, values, and effective social interaction methods in order to complete the situationalities framework and develop preliminary design guidelines based on the framework.

The situationalities framework will include learning goals and values, the social interaction methods that have been effectively used to attain them, and the instructional conditions that are important to consider when choosing a particular method. The final format for the presentation of the framework will be determined after data analysis is complete. One option is to use a table format (see figure 1).

Expert Review

After completing the initial situationalities framework, I will send it along with a summary of relevant sections of the entire study via e-mail to the author of each case study for review and commentary. Feedback from the authors will be used to consider final revisions to the situationalities framework and answers to the study questions.

Validity and Reliability of the Research

Since the results of this study, and educational research in general, will be used to inform instructional designers and contribute to prescriptive design theory that will ultimately be used to design instruction, it is imperative that researchers and designers must be able to trust the results. Messick (1989, in Stake, 1995) has stated that the consequences of using research findings should be considered part of the researcher’s responsibility. Stake (1995) asserts that researchers have “ethical obligations to minimize

misrepresentation and misunderstanding.” (p. 109) In other words, the study must present findings that are valid and reliable. Validity and reliability should be considered through the study’s conceptualization and design, and the way data is collected, analyzed, and interpreted (Merriam, 1988). This study will implement specific methods to enhance the internal validity, external validity, and reliability of the results. This study must first of all exhibit internal validity before external validity should be considered (Guba & Lincoln, 1981).

Internal Validity

Internal validity is concerned with how well the study findings match reality (Merriam, 1988). The multiple realities that researchers must deal with in naturalistic studies (such as case study research) reside in the minds of the readers, and the concern for internal validity is really a concern for credibility – How credible are the findings to the reader (Guba & Lincoln, 1981)? The credibility of this research will be enhanced through the use of multiple sources of data and multiple collection methods – a process of triangulation (Guba & Lincoln, 1981; Yin, 1994). Triangulation is accomplished through the use of both document (case study) analysis and interviews with selected case study authors. Both methods of data collection gather information about the same situation, or case, and provide complimentary data types for analysis. If data and analysis findings gathered from a case study and an accompanying interview with the author are consistent and complementary, the credibility of the study is strengthened. Additionally, in a case survey approach, if findings are consistent across many cases, the credibility of the study is further strengthened. Threats to internal validity include inconsistencies between case report and author interview data, inconsistencies across multiple cases that cannot be

explained by situationalities, and major findings from one form of data that are not supported by a complementing form of data.

A final method of assuring credibility in this study will be the use of feedback from study participants in the review of interview analyses and the initial situationalities framework – a process of member checking (Guba & Lincoln, 1981; Stake, 1995). Member checks will be used in two stages, first in the author interview follow-on query, and secondly in the final “review and feedback” request to all case study authors.⁵ As stated earlier, these member checks will allow the study participants to comment upon preliminary findings, and may assist me in refining, revising, and confirming the situationalities framework. A threat to credibility with this method occurs if many case study authors decline to participate in either the author interview or the final review and feedback survey.

A final aspect of internal validity concerns the influence a researcher has on case report findings. The fact that this study will consider individual cases “post facto” without exerting any external influence on the situation helps assure that there is no possibility of this researcher’s influence on the individual cases. A threat to internal validity along these lines could arise due to the influence of the original case study authors in their own study settings, but it is impossible to control for this post facto. I have to rely on the ethics and methodological rigor of both the authors and the publication reviewers, in the hope that each individual case followed adequate methods to preserve validity and reliability. Including case reports that contain a discussion of internal validity (and potential threats) as part of their reported findings will help reduce the threat to this study.

External Validity

The concern for external validity arises because the findings of this study are intended to provide useful information for generating instructional design theory, which, to be useful, should be applicable in many specific situations and contexts. An argument for the external validity of this study design can be made if you consider the overall research approach. The main purpose of this study is to develop a situationalities framework that could be used to help designers identify the specific conditions, goals, and values of their own context that will affect the use of social interaction methods in online learning environments. Cronbach (1975, as cited in Merriam, 1988, pg. 175-178) and Guba and Lincoln (1981, pg. 118) recommend that a study such as this consider its findings to be a set of “working hypotheses” that fit more or less into a new context.

A situationalities framework of methods linked to conditions (or sets of conditions), goals and values, based on a large number of case studies grounded in real practice, will be used to tailor an instructional approach to a specific context. This framework should allow the study findings and design guidelines developed from this framework to be transferable to a fairly wide variety of contexts. When considering the concept of using findings such as these to generate instructional design theory, Reigeluth and Frick (1999) claim that “when situationalities are incorporated into the theory, the theory becomes useful for a broader range of situations.” (p. 649). Considering the study findings as design theory that offers “guidelines for practice” rather than “rules to follow” seems to fit Guba and Lincoln’s conception of generalizability as well.

Reliability

⁵ Please see Appendices B and C for sample interview and survey questions.

Reliability is concerned with whether another investigator could use the same data and follow the same procedures as an original researcher to arrive at the same findings, in order to minimize the errors and biases in a study. The main issue is whether the study processes are consistent, stable over time, and stable across researchers and methods (Miles & Huberman, 1994). The reliability of this research is enhanced through the use of a consistent pattern of data selection, collection and analysis – referred to as a “chain of evidence” (Yin 1994). Yin states that researchers should, “. . . strive to develop a formal, presentable database, so that, in principle, other investigators can review the evidence directly . . .” (pg. 95). In this study, I will use a common qualitative analysis database (such as NU*DIST) that ties together case study identification and analysis, interview analysis, and the situationalities framework. Using a common database contributes to the consistency of study processes. Additionally, Yin refers to the use of a chain of evidence that would allow a reader to move from one section of the study to the next with clear ties between methods, evidence, and findings. This study report, with its appendices and the accompanying database, should provide this chain to interested readers.

In summary, the methods I will use include case survey of approximately thirty descriptive case studies, selected author interviews, and a member-checking survey of all case authors. Using qualitative analysis techniques and tools, I will create a “situationalities” framework that includes methods of social interaction, underlying learning goals and values that these methods are chosen to meet, and the specific conditions that affect the effectiveness of these methods. I will also develop preliminary prescriptive guidelines to show how this framework can be used to create instructional theory for online learning environments.

[The next chapter, Data Analysis and Findings, explains the analysis, presents the situationalities framework and preliminary design guidelines.]

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Figures

Figure 1. Situationalities framework (with sample data)

| Learning goals | Values | Social interaction methods | Instructional conditions |
|---|---|--|---|
| Students will work in teams to complete assigned projects | <ol style="list-style-type: none"> Students should be able to work cooperatively in small groups. Another value associated with this learning goal. | <ol style="list-style-type: none"> Create team workspace in the class discussion forum. | <ol style="list-style-type: none"> All students have equal access to class discussion forum. Students are able to communicate in a common language in textual form. |
| | | <ol style="list-style-type: none"> Use synchronous chatroom for team decision-making. | <ol style="list-style-type: none"> All students on a team are able to coordinate a common time for team chat. Students have reliable Internet connections. |
| | | <ol style="list-style-type: none"> Another method | <ol style="list-style-type: none"> Conditions for method 3. |
| Goal 2 | Value(s) associated with goal 2. | Method(s) associated with Goal 2. | Conditions associated with methods. |

Appendix A – Case study sources

Published journals (paper-based)

- The American Journal of Distance Education
-
- Canadian Journal of Educational Communication
- Distance Education
- Educational Media International
- Educational Technology
- Educational Technology Research and Development
- Educational Technology Review
-
- Educational Technology Systems
- International Journal of Educational Telecommunications
- Journal of Distance Education
- Journal of Computer-based Instruction
- Journal of Educational Computing Research
- Journal of Educational Multimedia and Hypermedia
- Journal of Interactive Learning Research
- Journal of Research on Computing in Education
- Journal of Technology and Teacher Education
- T.H.E. (Technology Horizons in Education) Journal

Online e-journals

- The Australian Journal of Educational Technology -
<http://cleo.murdoch.edu.au/ajet/ajet.html>
- Online journal of Computer Mediated Communication -
<http://www.ascusc.org/jcmc/jcmcindex.html>
- Educational Technology & Society - <http://ifets.ieee.org/periodical/>

- Interpersonal Computing and Technology Journal -
<http://jan.ucc.nau.edu/%7Eipct-j/>
- Journal of Asynchronous Learning Networks (JALN) -
<http://www.aln.org/alnweb/journal/jaln.htm>
- Journal of Electronic Publishing - <http://www.press.umich.edu/jep>
- Journal of Instructional Science and Technology -
<http://www.usq.edu.au/electpub/e-jist/>
- Journal of Interactive Media in Education - <http://www-jime.open.ac.uk/>
- Online Chronicle of Distance Education and Communication -
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Major conference proceedings

- AECT Conference Proceedings
- ALN Conference Proceedings -
<http://www.aln.org/alnweb/conferences/proceedings.htm>
- ASCILITE – <http://www.ascilite.org.au/conferences/>
- CSCL Conference Proceedings (95/97/99) - <http://www-cscl95.indiana.edu/csc195/toc.html>
- Distance Learning Conference Proceedings -
<http://www.uwex.edu/disted/conference/>
- ED-MEDIA Conference Proceedings (97/98/99/00)
- SITE Conference Proceedings (98/99/00)-
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- Others?

Miscellaneous sources

- ERIC Database - <http://ericir.syr.edu/Eric/>
- Doctoral Research in Educational Technology: A Directory of Dissertations, 1977-2000 - <http://www.edtech.UNCo.edu/disswww/dissdir.htm>
- ProQuest Digital Dissertations - <http://bert.lib.indiana.edu:2060/dissertations/gateway>

Appendix B – Interview Protocol

Interview Subject: _____

Case Study Identification: _____

Date: _____

Location: _____

Media: Audio In-person E-mail (circle one)

Welcome/Introduction: Thank you for participating in this study. As you know, your participation is completely voluntary. If at any time you would like to stop the interview and/or revoke your agreement to participate, just indicate so and we will stop. If you decide not to participate, I will destroy all records of your participation. Are you ready to continue?

Possible Questions (actual form places one question at the top of a new page)

1. Please describe the overall learning goals you wanted to achieve in this situation.
What were the underlying learning values that guided the design of your course?
2. What methods of social interaction seemed to work the best in your situation? –
Why? Can you envision a situation in which they would not work well?
3. Which of your learning goals were met effectively with the social interaction methods you chose? Were any of your learning goals unmet? Did the social interaction methods chosen contribute to this? Can you think of any other social interaction methods that might have helped meet those goals?
4. If you could implement any method of social interaction you wanted in your learning environment (or course), what would you choose –and why?
5. In your online learning environment (or course), what are you doing differently today – and why?

6. Ask specific questions about the values, methods, and conditions in the situationalities framework – clarifying, extending, etc. (*this will be different for each interview*)

Appendix C - Survey Protocol

Thank you for your participation. If you have not done so already, please read the Study Information Sheet provided with this survey.

Please review the document you received, entitled “Social Interaction in Online Learning: Methods and Situationalities.”

Name:

Date:

Next, answer the following questions. When you have completed this survey, please send your responses to bjbeatty@indiana.edu. At the end of the survey, please indicate whether you would like to receive a copy of the full study, when completed.

Survey Questions (Please type your response directly beneath each question.)

1. When you create online learning activities (or environments), what are the underlying learning values that guided the design of your course?
2. What methods of social interaction seem to work the best in your experience? – Why? Can you describe any situations in which they did not work well?
3. Which learning goals are usually met effectively with the social interaction methods you choose? Do any of your learning goals remain unmet, in most situations? If so, do the social interaction methods you choose contribute to this? Can you think of any other social interaction methods that might help meet those goals in future situations?
4. If you could implement any method of social interaction you wanted in your learning environment (or course), what would you choose –and why?
5. In your online learning experience, what are you doing differently today than you were one or two years ago? Why have you changed your approach?
6. Do you have any specific comments regarding the “social interaction situationalities framework” included in the document you reviewed? (Do you think it would be helpful when designing online instruction? What seems to be missing? Is there anything that seems unnecessary?)

Please indicate whether you would like to receive an electronic copy of the full study when it is completed.

_____ Yes, I would like to receive a copy of the completed study.

_____ No, I do not want to receive a copy of the completed study.

Thank you for completing this survey. Please return it to **bjbeatty@indiana.edu** no later than October 20, 2001 (specific date TBD).