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ABSTRACT

Students are increasingly expecting social media to be a component of their educational experiences both outside and inside of the classroom. The phenomenon of interest in this dissertation is understanding how the educational experiences of students are affected when social media are incorporated into online and blended course activities. Qualitative case studies are undertaken toward this end from a Human-Computer Interaction perspective by proposing 4 research questions: (1) How does the use of social media in blended-learning courses impact students' educational experience? (2) How does the use of social media in online courses impact students' educational experience? (3) How do specific features of social media impact student experiences inside the physical classroom? (4) How do specific features of social media impact student experiences outside of the physical classroom?

This work is rooted in the theoretical foundations of the Community of Inquiry (CoI) framework to conceptualize educational experience as defined by the intersection of social, cognitive, and teaching presences. Adaptive Structuration Theory (AST) is also integrated here to conceptualize social media features as technical objects defined through the relationship of functional affordances and symbolic expressions between students and social media.

The findings are based on a total of 9 case studies (5 within a blended context and 4 within an online context) bound by students in Masters-level library science classes at Syracuse University. The results suggest that social presence is clearly the most salient type of presence in social media within blended course contexts, while cognitive and social presences are relatively salient in social media within online course contexts. Two main categories of affordances, timeliness and information curation, emerged as pertinent to students'

educational experiences in blended courses; while both of these, plus multimedia engagement, were identified as relevant to online courses. Technical objects (general features of social media) were identified which facilitate these affordances, and implications based on these are provided in respect to practice (for educators and information technology designers) and theory.

Understanding The Use and Impact of Social Media Features on The Educational Experiences of Higher-Education Students in Blended and Distance-Learning Environments

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Dissertation

Submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Information Science and Technology

Syracuse University
Syracuse, NY
May 2014

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1. CHAPTER ONE: OVERVIEW

1.1 OPENING VIGNETTE

It was 5:00pm on a weekday evening in mid-November at the University. Reference and Information Literary Services (RILS) was a Masters-level, introductory class that consisted of about 30 students who were seated in the room around 3 rows of desks shaped to form neat semi-circles. The instructor, Ms. Jackman (pseudonym), had just explained that they would be waiting a few more minutes to formally begin, as a two or three people had yet to arrive to tonight's 3-hour session. The seated students had quieted down while she made her announcement, but were quickly back into full chatter mode. Clearly, those in attendance didn't mind the delay as was evidenced by the frequent bouts of giggles rippling across the audience.

As multiple conversations kept most of the class occupied, the remaining individuals filtered into the room over the next couple of moments. Ms. Jackman soon pipped up that class would now commence, and the students immediately fell into a contented silence. As everyone got settled, Ms. Jackman explained that a few guests were peppered through tonight's audience.

Just one week earlier, she and twenty students from the LIS programs, including a handful from this class, had attended the The New York Library Association (NYLA) 2012 Annual Conference and Trade Show. For the first hour of this evening's class, she wanted to hold a discussion about students' impression of NYLA 2012. While those in the class who had attended were to relate their experiences at the conference, nearly all of the students in the course were in their first semester as graduate students. Therefore, Ms. Jackman invited

three students who were close to graduating, and who had also attended NYLA, into the class to share their impressions based on their more seasoned perspectives.

Ms. Jackman called on people from around the room to express their thoughts about NYLA.

The discussion had an informal feel to it, with Ms. Jackman acting more like a facilitator rather than imposing requirements about what could be addressed. Those who attended NYLA related: who they met at the conference, what sessions were like, and the opportunities that might come about from networking with professional librarians.

Students who did not attend NYLA participated by posing questions to those who did as, allowing them to gain insight from the experiences of their peers. As the discussion went on, some students were clearly marking down information in their notebooks, while others were clacking away on their laptops. In total, about a dozen individuals in the room had computing devices in front of them, including a few who were actively using tablets. Here and there, some periodically even turned their attention to their smartphones. Ms. Jackman did not even bat an eye at this behavior.

Eventually, the conversation turned to commenting on best practices for those who would attend next year's NYLA in Niagara Falls. A young man in the audience inquired about the actual value of attending NYLA because library jobs were becoming extremely competitive in New York State. He pointed out that he had the impression it would be easier to find a librarian position somewhere out in the midwest, which would reduce the relevancy of NYLA for him. As the class chatter turned to address this concern, one student who was directly across the room from him, in the back row, suddenly burst into a fit of laughter that she quickly (and unsuccessfully) tried to stifle. Her eyes darted up from her laptop screen

as Ms. Jackman stepped forward and turned to the student. She asked with a knowing smirk, “you’re looking up casinos near Niagara Falls for next year, aren’t you?”

“No,” the student replied still chuckling, “I was just reading a tweet from Rachel (pseudonym) about the midwest.”

“Ahhh,” Ms. Jackman replied, and she asked the student who had been interrupted to continue what he had been saying before the humorous outburst. And with that, the conversation continued ahead unabated. Eventually, the class turned their attention to another main topic of the evening: discussing the physical layout and aesthetics of public libraries.

As an observer in that night’s class session, I was privy to the catalyst for the student’s unexpected fit of laughter. I was able to read exactly what it was Rachel had tweeted: “Based on @MSLISStudent4 (pseudonym) face, he's going straight to the Midwest as soon as graduation comes. YEE-HAW! #rils.” My laptop had been open in front of me, logged into Twitter since the start of class. I had been following two hashtags: “#nyla12” and “#rils” (a stand-in, for confidentiality purposes, of the designated hashtag for class discussions since the beginning of the semester). Right after starting class, Ms. Jackman had noted that if students were going to tweet during the in-class discussion about the conference, they should use the hashtag “#nyla12” so that those in the class, and others who were interested in the conference, could contribute to the conversation.

Many of those who had laptops, tablets, or smartphones handy during this in-class conversation were engaged in what had come to be known as a “backchannel,” that is, an online discussion that occurs in real-time as a face-to-face event (such as a class lecture or

conversation) takes place. Twitter had come to be embraced as a regular in-class backchannel for about half of the students taking RILS this semester. The above anecdote serves to illustrate how social media provided this backchannel, which had a clear impact on the class dynamic. Section 5.1 expands on this anecdote, integrating the findings of my research to explicate the relevance and ramifications of this novel dynamic.

However, the incidence of interruption (including Twitter use as a backchannel) described above demonstrates that social media may be changing the way that discourse happens in higher education. Furthermore, Twitter is but one social medium that may have an impact on students' educational experiences inside or outside of the classroom. Educators have been increasingly integrating social media into their courses as indicated by a recent report released by Pearson Learning Solutions (Moran, Seaman, & Tinti-Kane, 2011). Yet, understanding *how* technology, such as social media, affects education is challenging considering the variety of information communication technologies (ICTs) available, and the different learning contexts in which they may be employed (Goodwin, Thrope, & Richardson, 2008). This overall rationale behind the research conducted for this dissertation is to take a step forward in helping scholars, educators, trainers, and technology designers begin to understand how social media characteristics impact the educational experience within communities of inquiry.

1.2 INTRODUCTION

The ubiquity of social information and communication technologies (ICTs) within the recent few years has ushered in new opportunities for students to engage with faculty, their peers, and school-related content both outside and inside of classrooms (Vaughan, 2007). A

June 2011 study conducted by CourseSmart™ of 500 enrolled college students revealed that 98% own a digital device, while 85% use ICTs to study for an average of 2 hours per day ("Digital Dependence of Today's College Students Revealed in New Study from CourseSmart," 2011). In fact, nearly three quarters claimed that they would be unable to study without their digital devices.

Pearson Learning Solutions has reported that a majority of instructors in face-to-face classes have, at the least, experimented with social media in their classrooms (Moran et al., 2011). Social media are defined as "Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User-Generated Content" (A. M. Kaplan & Haenlein, 2010a, p. 61). Examples include social networking sites (such as Facebook), blogs, microblogs (such as Twitter), and wikis. The aforementioned Pearson Learning Solutions report states that 80% of instructors have used online video in class, 30-40% have posted content for students, or asked them to review posted content on a social media site, while 20% have required students to participate on social media sites. However, there has been "little reliable, original pedagogic and evaluation evidence" of social media in regard its impact on teaching and learning (P. Anderson, 2007, p. 37).

It is important to be mindful of using ICTs for educational purposes as they may have positive or negative impacts on students' experiences (Thrope & Godwin, 2006). Godwin et al. (2008) assert that to establish appropriate pedagogical design that effectively utilizes ICTs for education, we need to have "an understanding of how computer-mediated interaction can be used to support the learning process with an appreciation of how the

world of the individual student intersects with the world created by a particular course” (p. 68). Thus, they call for researchers to investigate student *interaction* with ICTs across various circumstances, noting that “our understanding of how to maximize the value of interaction in conditions of diversity is still developing, but in-depth case studies of specific course contexts seem to promise the best route forward” (p. 68). To date, there is not a clear understanding of the impact of social media (and their constituent characteristics) on students’ educational experiences in higher education. Thus, establishing appropriate pedagogical design to effectively utilize these ICTs is problematic.

Blended and distance-based online courses are two distinct contexts in which students utilize ICTs as part of their educational experiences. While blended classes meet face-to-face, they also integrate ICTs into learning activities and class dynamics (Stacey & Gerbic, 2007). Distance-based online courses are “institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors” (Simonson, Smaldino, Albright, & Zvacek, 2003, pp. 7-8). Distance may refer to more than just physical location, as it could be a time distance. This form is also commonly referred to by scholars by other names such as online learning, virtual learning, and electronic learning (or e-learning). I use these terms synonymously throughout this document.

The phenomenon of interest in this dissertation is *educational experience* in respect to students interacting with social media for pedagogical purposes in both blended and online classes. This chapter provides an overview of the research conducted for this dissertation, as well as necessary background information to advance the reader’s understanding of its

relevance. I begin by first explaining the importance of the problem this dissertation addresses, and presenting the specific research questions that guide my investigation. A theoretical framework is then introduced, followed by an overview of the methodological strategy undertaken. The main findings of this research are discussed, along with their limitations. Finally, the expected theoretical and practical contributions of this research are explained, and a short recap of the study's scope concludes the chapter.

1.3 PROBLEM STATEMENT AND RESEARCH QUESTIONS

1.3.1 PROBLEM

Conceiving of the classroom as a space for information dissemination from teacher to student is deeply engrained in the fabric of our academic institutions and practices. In 1991, Seymour Papert, one of the earliest proponents of digital technologies for learning in the classroom, imagined that a time-traveling teacher from one hundred years earlier was transported into a modern classroom. He writes that this teacher would find:

Some things are puzzling, such as the funny little box with a window looking into another place, or maybe it's a magic mirror. But most of what's going on in that classroom is easily understood. And if the host teacher leaves the room, the visitor wouldn't have the slightest trouble taking over and teaching the multiplication tables or spelling – unusual ideas about a few words would not make a big difference (Papert, 1991a, pp. 16-17).

He underscores the ridiculousness of maintaining old paradigms in the face of contemporary technological affordances by drawing a parallel to medicine. He remarks that a surgeon from the late 1800's would not understand what was going on in a 1990's operating room. Worse, should he have to take over during a surgery, he would be useless,

especially when faced with innovations that did not exist during his time (such as electronics and anesthesia). While Papert wrote this prior to the deregulation of the Internet and the mass consumer adoption of PCs, his criticism still pertains to education today. The lecture mode (that is, information dissemination from instructor to student) is still the primary teaching and learning approach with which we are most intimately familiar.

Nevertheless, more than a quarter of higher-education students today take at least one online class (Allen & Seaman, 2010), and educators are readily adopting social media as teaching tools (Moran et al., 2011). On the surface, these facts would seem to challenge Papert's 20-year old critique of the classroom. However, Learning Management Systems (LMSs) are typically the medium through which online and blended courses are administered. An on-going criticism of them is that their design and use simply perpetuates the paradigm of information dissemination, albeit through computer-mediated media (e.g., Malloy, Jensen, & Reddick, 2001; Rollett, Lux, Strohmaier, Dosinger, & Tochtermann, 2007).

Citing the ideas of Marshall McLuhan, Garrison (2011) reminds us that content delivered via new media is often repurposed from older media. For example, cinema originally presented recorded plays, while mail was one of the first uses of Internet technologies. Likewise, replacing paper syllabi and disseminating lectures was the first application of the Internet to institutional education. Indeed, Weigel (2005) points out that an LMS "canalizes our collective creativity by forcing e-learning technologies into the familiar classroom categories of lectures, discussions, and exams (with an occasional opportunity to chat with the professor or other students 'after class')" (p. 55). This may "provide and determine the

pedagogical processes by which teaching and learning take place; as such they also set the constraints for the online teaching learning relationship” (Malloy et al., 2001, p. 4). Thus, these constraints become a part of pedagogy and student experience. It is this rigid structure of LMSs that casts students into unproductive roles as consumers of information (Lee & McLoughlin, 2007).

Even with newer ICTs, namely social media, there is evidence that those adopted by educators are similarly being used primarily to disseminate information. For example, while almost 35% of faculty indicated that they have required students to watch online video, less than 10% have reported requiring students to make any video posts themselves (Moran et al., 2011). Thus, the spirit of Papert’s critique (Papert, 1991) still stands in regard to LMSs and social media use in education, as these ICTs may simply be used in ways that only perpetuate the familiar lecture-centric, information dissemination mode that reinforces surface learning. There has been much written about how social media may impact relationships, advertising, employment, entertainment, social movements, and many other types of institutions because its design allows everyone to have a voice. That is, everyone can participate and contribute easily because of (presumably) the functional affordances of social media. Therefore, one could question whether or not the best use of social media in higher education is to continue the “business as usual” mindset of information dissemination from instructor to student.

Orr (1991) cautions that it is a mistake to think “that the goal of education is to stuff all kinds of facts, techniques, methods, and information into the student’s mind, regardless of how and with what effect it will be used” (p. 100). Although there are different theories of

learning (as will be elaborated upon in Chapter 2), one of the most famous names in education, John Dewey, emphasized that *experience* is crucial to worthwhile learning (Dewey, 1938). This is articulated strongly by Prosser and Trigwell (1999) who make a distinction between the deep approach and the surface approach. The deep approach is when students seek meaning and understanding in a give topic, relating new subject matter to that which they already know. Surface learning is commensurate with rote learning in that a task is met with minimal effort where the student will focus on unrelated parts, treat related parts separately, reproduce materials, and simply memorize lists. Deep learning is best done in an “experienced” world, by putting things into context. In other words, subject matter must be given meaning in that the individual must perceive a relationship between him and herself and the external world.

Attacking the information-dissemination approach to using ICTs for education, Garrison (2011) explains that access to information does not make any tool unique or effective, just as surfing the Internet is not any more of an educational experience than would be walking around a library. That, he argues, is disingenuous to claim as anything beyond informal learning. Thus, educators are now “challenged to go beyond these early adaptations and develop educational approaches that exploit the possibilities of e-learning to support sustainable communities of inquiry” (p. 6). Consequently, Garrison asserts that e-learning should be about a “virtual community of learners”.

Garrison, Anderson, and Archer first proposed the idea of a community of inquiry (CoI) as an online learning model in 2000, although this has been extended to blended learning (e.g., Akyol, Garrison, & Ozden, 2009; P. Shea, C. S. Li, & A. Pickett, 2006; Vaughan, 2010). The CoI

model posits that meaningful educational experiences happen within a community with teachers and students as its members. Accordingly, this model puts forth that deep and productive learning with ICTs occurs through experience that involves the interaction of cognitive presence, social presence, and teaching presence (D. R. Garrison, Anderson, & Archer, 2000).

There is a breadth of materials, accessibility, and multimedia afforded by the Internet and ICTs which can be valuable, immersive assets for students, providing novel learning channels (Brown, 2006; D. R. Garrison, 2011; Porter, 2006). Indeed, a plethora of social online media tools and applications have arisen since Malloy and colleagues' assessment of LMSs over a decade ago (Malloy et al., 2001). The rise of social media may present students with experiences not otherwise afforded by the features present in a traditional LMS. However, admittedly, it is far too early to tell how the popularity and ubiquity of social media will impact ICT-enhanced education (D. R. Garrison, 2011). Sanger (2010) best expresses a sense of caution in arguing that:

There is no reason to think that repurposing social media for education will magically make students more inspired and engaged. What inspires and engages some people about social media is the passion for their individual, personal interests, as well as the desire to stay in touch with friends. Remove those crucial elements, and you merely have some neat new software tools that make communication faster (p. 18).

On the flip-side of this, the use of social media is something today's learners seek out in their education experiences as these technologies have become such a pertinent part of their daily lives (Scialdone, Rotolo, & Snyder, 2011). Thus, if we have little evidence to suggest that social media will make students more engaged, yet they desire social media in

their classrooms, we are compelled to conduct empirical research on the matter to better understand its use and impact as related to students' educational experiences.

The study presented in this document addresses this challenge by *seeking to understand how the educational experiences of students in distance-based online and blended higher-education courses are affected when social media are incorporated into course activities.*

Distinct types of ICTs may encourage different approaches to instruction and learning based on their features (A. M. Kaplan & Haenlein, 2010b) and how much of a sense of community (or not) that they engender (Holmes & Gardner, 2006). However, many social media share similar features, yet retain distinct characteristics that engender specific types of behaviors, actions, and interactions (A. M. Kaplan & Haenlein, 2010a). Quoting Schrage, Garrison et al. (2000) point out "collaboration depends not only upon the skill of the user but also upon the tools used, and that technology 'inevitably shapes the way people relate to each other' (Schrage, 1995, p. 137). It may be that different media have different potentials to address cognitive, social and teaching presence" (p. 92).

Another challenge with appropriating technology for educational activities is articulated by Wagner (1994) who observes "interest in technologies should focus on this ability to expand opportunities for interactive communication; however, fascination with what the technologies do often supersedes the broader issue of teaching and learning dynamics" (p. 7). In other words, it is important that instructors don't just use social media because it is new, hip, or in demand. Rather, they should make informed choices about which social media based on how these can impact blended and online learning. However, while ICTs should not generally be utilized without amply vetting and matching distinct media to

corresponding educational affordances, the rapid rates at which ICTs evolve make it difficult for educators to fully do so (Goodwin et al., 2008).

1.3.2 RESEARCH QUESTIONS

Zhang and Li (2005) advise that HCI, as a sub-discipline of Information Systems (IS), is concerned with “the ways that humans interact with technologies for various purposes” (p. 228). Interaction is the key phenomenon that drives HCI studies, and is typically understood in relation to the intersection of four main tenets: humans, technology, tasks, and context (Scialdone, 2010). HCI studies concentrate on how one or more aspects of humans and computers interact within a specified context for a particular purpose. Interaction is understood, studied, and theorized based on both the *design* of an information system, and how individuals *use* it.

In light of the dynamic, evolving nature of technology (Goodwin et al., 2008), and the propensity for fascination to take precedence over appropriateness (Sanger, 2010), this study sheds light on how *specific features* (later referred to as technical objects) of social media contribute to student learning experiences, rather than making claims of learning experience based solely on distinct social media themselves. Specifically, I provide description about how students use specific features of various social media in blended and online classes, and explain how those specific features impact the students.

This research, while focused on investigating a problem within an educational context, takes an HCI approach because *interaction* with social media is directly related to educational experience. Considering the above problem statement, there are four research questions that drive this research:

- ***RQ1: How does the use of social media in blended courses impact students' educational experience?***
- ***RQ2: How does the use of social media in online courses impact students' educational experience?***
- ***RQ3: How do specific features of social media impact student experiences inside the physical classroom?***
- ***RQ4: How do specific features of social media impact student experiences outside of the physical classroom?***

Consistent with HCI research, the first two questions address use and impact of social media, each addressing distinct educational course contexts: blended and distance-based (online) respectively. The last two questions are posed to investigate ICT design. Mindful that blended students may appropriate social media inside the classroom (as described in the opening vignette), RQ3 is largely aimed to address design concerns as distinctly related to this context. However, as both blended and distance students might use social media outside of the classroom for interaction, RQ4 is relevant to both blended and online course contexts.

1.4 THEORETICAL FRAMEWORKS AND PHILOSOPHICAL ASSUMPTIONS

There are two models that drive the focus and scope of this work: adaptive structuration theory, and the community of inquiry framework. As with any theories, these carry with them philosophical assumptions about the nature of the phenomena they describe and explain. A brief overview of these frameworks and their assumptions are provided below.

1.4.1 OVERVIEW OF ADAPTIVE STRUCTURATION THEORY

While further detail about adaptive structuration theory (AST) will be provided in Chapters 2 and 3, the basics are introduced here. AST was first introduced by DeSanctis and Poole (1994), extending Giddens' structuration theory (1979, 1984) to reflect and capture the interplay between human actors, technology, and social structures. They argue this is a valuable lens through which one can study the role that ICTs play in affecting organizational change. In short, DeSanctis and Poole adopt a position that Orlikowski (1992) called the duality of technology, which reasons that while an ICT is physically designed and manufactured by people who do so in a particular social context (with sets of rules and expectations), users of that ICT socially construct different meanings around the features and appropriate them accordingly. The social, organizational context of design and use are therefore emphasized by this theory, and are thus necessary to understanding how technology is shaped by designers and reshaped by users.

For this research, I adopt an extension of AST from Markus and Silver (2008) that clarifies and refines some of the concepts in the original theory. They note that the link between socially embedded structures and IT effects can be best understood through three concepts: technical objects, functional affordances, and symbolic expressions. Technical objects denote "IT artifacts and their component parts" (Markus & Silver, 2008, p. 620) which are "real things" in either tangible or abstract form which must generally be perceived to be used. As technical objects can be repeatedly decomposed into smaller objects and features therein, functional affordances and symbolic expressions allow a researcher to focus in regard to scope and features.

Functional affordances are not properties of an ICT, but rather the possible goal-driven actions that a specified user (or group) are afforded by a technical object (Markus & Silver, 2008). It describes a relation between a user (or user group) and a technical object.

Accordingly, these can assist researchers in narrowing down the possible technical objects and related characteristics that are relevant in a given study. Symbolic expressions are defined as “the communicative possibilities of a technical object for a specified user group” (Markus & Silver, 2008, p. 622). They are also not properties of ICTs themselves, but rather a relation between a user (or group of users) and a technical object or any components thereof.

While these concepts are revisited in future chapters, it is necessary to make clear the assumptions that are bound to their use in IS research. Markus and Silver (2008) explain that their extension of AST is ensconced in a critical realist view of technology. This view “eschews the view of causality as observed empirical regularities. In this view, objects (including people, material objects, and social phenomena such as institutions) and relations among objects (for instance, friendship or master-slave relations) are viewed as having causal potential, but whether or not this potential is realized in actuality may depend on many other conditions, such as the behavior of other objects” (p. 613).

Therefore, research which incorporates AST into its conceptual framework will likely favor explanation over prediction.

Although I expand on this technological assumption in Chapter 3 as part of my rationale for qualitative inquiry into the problem stated above, this view is consistent with the next framework I discuss. The concept of the educational experience, which is at the heart of

both the research questions above, and the framework below, is comprised of several overlapping contextual factors that, in practice, are supported by ICTs. Thus, AST provides a pertinent lens through which to examine the role of social media features (as technical objects) in a community of inquiry.

1.4.2 OVERVIEW OF THE COMMUNITY OF INQUIRY

The second theoretical framework which has helped to direct the nature of this study is called the community of inquiry (CoI). As noted above, Garrison, Anderson, and Archer (2000) proposed that within a CoI, meaningful educational experience happens at the intersection of social presence, cognitive presence, and teaching presence. There are, of course, assumptions deeply embedded within the CoI framework. Namely, the framework (and hence, this research) approaches the concept of learning from a “collaborative constructivist” philosophy. Garrison (2011) explains that this perspective is most often connected with the work of John Dewey (1938). The collaborative constructivist belief explicitly rejects information dissemination as a useful mode for understanding the world. This much is made clear in Dewey’s distinction between information and wisdom. He writes:

Information is knowledge which is merely acquired and stored up; wisdom is knowledge operating in the direction of powers to the better living of life. Information, merely as information, implies no special training of intellectual capacity; wisdom is the finest fruit of that training. In school, amassing information always tends to escape from the ideal of wisdom or good judgment. The aim often seems to be - especially in such a subject as geography - to make the pupil what has been called a “cyclopedia of useless information” (Dewey, 1938, p. 28).

The philosophical assumption here is that individual knowledge is inherently a socially-built artifact (Brown, 2006; Brown & Thomas, 2010; Dewey, 1938; D. R. Garrison, 2011; D. R. Garrison et al., 2000), which is to say that social experiences are a key component of understanding the world. However, within these social learning experiences, individuals are responsible for delineating meaning. Meaning is something that individuals construct and share with one another. Accordingly, an educational experience serves to help students build knowledge which has personal meaning to them, and to refine and share this knowledge within a community.

Citing Dewey (1938), Garrison (2011) explains that “transactional communication is the defining component of the educational experience when students transform inert information passed to them from another and construct it into knowledge with personal application and value” (p.10). The “educational experience” at the heart of computer-mediated learning is inextricably linked to the ICTs that students use to interface with information, transform it into knowledge, and share it with others. The “educational experience” is where deep, rich, and meaningful learning occurs (Garrison, 2011). That is, within a computer-mediated context, this is what is required for students to be able to create knowledge, as predicated by Dewey’s collaborative constructivist learning philosophy. Further details about the types of presence depicted in the model will be provided in Chapter 2. The three types of presence are briefly introduced here to provide insight on major themes that will be reoccurring in this research.

Social presence is the extent to which others in a community perceive that participants are “real people,” and the degree to which a sense of belonging is felt amongst those

participants (D. R. Garrison et al., 2000). This is reflected by indicators involving open communication about oneself, interpersonal communication with others, and using language that is indicative of group cohesion (D. R. Garrison, 2011; D. R. Garrison et al., 2000).

Cognitive presence refers to the extent students “are able to construct meaning through sustained communication” (D. R. Garrison et al., 2000, p. 89), and is viewed as the most basic element that determines higher educational success. Evidence of cognitive presence comes from stages in this process of constructing meaning which consists of a triggering event, exploration, integration, and resolution (D. R. Garrison, 2011; D. R. Garrison et al., 2000; D. R. Garrison & Cleveland-Innes, 2005).

Teaching presence refers to both the design of a course and facilitation of learning activities. Garrison et al. (2000) is careful to point out that while teaching presence is largely the concern of the instructor, other students may have a teaching presence. Three categories of teaching presence consist of instructional design and organization, facilitation, and direct instruction (D. R. Garrison, 2011; D. R. Garrison et al., 2000; P. J. Shea, Fredericksen, Pickett, & Pelz, 2003; P. J. Shea, C. S. Li, & A. Pickett, 2006).

Garrison (2011) observes that only a very limited number of studies have empirically examined the framework holistically. Furthermore, he explains that qualitative research approaches can help to gain an understanding of student perspectives not otherwise captured through quantitative means (Díaz, Swan, Ice, & Kupczynski, 2010; D. R. Garrison, 2011). As the research endeavor undertaken for this dissertation seeks a deep understanding of how a relatively new (and under-investigated) category of ICT impacts

student experience, a deep understanding of student perspectives across all facets of the CoI framework is of interest. Thus, a qualitative approach is adopted.

1.5 METHODOLOGY: THE CASE STUDY

The case studies undertaken by this research seek to understand how features of social media impact the educational experience of students in higher-education. The cases are bound by students taking specific courses (of distance-based and blended modes) within The Master of Science in Library and Information Science (MSLIS) program, and The Master of Science in Library and Information Science Social Media (MSLISSM) at the School of Information Studies (iSchool) at Syracuse University. There is much overlap between these two programs, meaning that many of the students from these programs have shared experiences and classes. Further detail on the specific methodology of this research will be elaborated on in Chapter 3, including assumptions interwoven into the qualitative case study, data collection, and analysis. The study design will also be detailed, but a brief overview is presented here as to establish the relevance of the method to the research questions.

A case study focuses on contemporary events, with the goal being a rich, detailed understanding of a phenomenon within a context that is not easily separated from that phenomenon (Yin, 2009). They tend to be defined within precise boundaries of time and space, and may consist of one or more cases (Creswell, 1998). The goal of case studies are to develop as full of an understanding as possible about the items bound within the cases, by probing deeply and analyzing the particulars of a case (Cohen & Manion, 1989). Case studies are a useful method for addressing “how” and “why” questions because these

inquiries “deal with operational links needing to be traced over time, rather than mere frequencies or incidence” (Yin, 2009, p. 9).

The research reported on here is the culmination of work from a pre-pilot study (Fall 2011), a pilot study (Summer 2012), and a full study (Summer and Fall 2012). Using criteria informed by the categorization scheme of social media by Kaplan and Haenlein (2010a), I have chosen two similar distance-based courses and one blended-learning course to address a breadth of context and social media types. As educational experience is the phenomenon of interest, my case studies were bound by 9 students to gain an in-depth understanding on the impact of social media on their experiences. Data was collected in multiple forms, including observations, digital artifacts, and interviews to gain a holistic understanding of the cases being investigated. These data were analyzed through inductive and deductive content analyses.

1.6 SCOPE OF CASE STUDIES

The scope of this research is determined, at least in part, by the field (HCI within IS) in which the scholarship is being conducted. A number of studies from the education discipline have investigated social media within learning contexts such as wikis as teaching tools (Parker & Chao, 2007), podcasts as audio learning objects (Cebeci & Tekdal, 2006), the pros and cons of Twitter for educational activities (Grosseck & Holotescu, 2008), learning in multiplayer online games (Steinkuehler, 2004), and student uses of weblogs (Oravec, 2002). However, while these studies may describe the features of social media, and their pedagogical affordances, they do not explicitly address the connection between features and educational experience. Thus, the research presented here is unique as I seek a deep

understanding of this connection whereby I can provide a clear explanation as to how specific features of social media impact the educational experiences of students across different contexts.

As HCI considers how humans interact with computing technology from the perspective of both design and use (Zhang & Li, 2005), this study is bound by investigating how students *use* social media, and how the *design* of social media contributes to these uses. Therefore, this study does not evaluate the learning outcomes of using social media in blended and distance classes. Rather, I develop a rich understanding of the experiences of students and how specific features of social media engender these experiences. This means that the characteristics of the technology (as framed within the constructs of the extended version of AST by Markus and Silver [2008]) and the experiences of online class members, comprise the scope of the study.

1.7 OVERVIEW OF FINDINGS

Perhaps not surprisingly, the research presented here found high amounts (later referred to as saliences) of social presence within the blended (RQ1) and online course contexts (RQ2). Cognitive presence within the blended context was less salient within social media than in the online context, but this was presumably because more of the intellectual discourse happened face-to-face in the blended context. Teaching presence was the least salient aspect of CoI framework across all social media in all contexts. This was likely attributable to the fact that the instructor was but one individual within the courses examined, and that much of the instructional administration of the course happened either face-to-face or away from the course discussion section on the LMS.

In regard to features of social media (described in terms of AST as technical objects) that impact students' educational experiences, these emerged largely around specific functional affordances that students identified. Within the classroom (RQ3), the theme of timeliness was relevant to students, where parsimonious communication tools were found to provide immediacy, and backlogs served to provide permanence. The theme of information curation was also identified as relevant to students, with dissemination filters serving to direct outgoing streams of information appropriately; while students appropriated single stream filters and multi-stream aggregators to distill relevant incoming information. Outside of the classroom (RQ4), these same technical objects were largely still applicable, but additional ones were identified as pertinent. Liberal communication tools were found to provide the affordance of not giving a sense immediacy. Identity management emerged as an important technical object for directing outgoing streams of information, while notifications were recognized as helpful for filtering incoming information streams. Embedding multimedia was a functional affordance that emerged as uniquely relevant to the online context, with multimedia as a technical object being found as useful to students for their educational experiences.

1.8 CHAPTER SUMMARY

This chapter posed research questions about the educational experiences of students in blended and online courses when social media is used to augment learning activities; and asked about how the design features of the social media contribute to these. While it has been reported that online learning is as effective as face-to-face learning (Means, Toyama, Murphy, Bakia, & Jones, 2010), many have criticized that the ICTs employed (LMS's) have

largely done nothing more than reinforce the education-as-information-dissemination model (e.g., Malloy et al., 2001; Moran et al., 2011; Rollett et al., 2007). Some muse over the possibility that the exchange of ideas and content afforded by social media may have direct implications for online classes (Moran et al., 2011; Rollett et al., 2007), and in particular, the ability to facilitate deep, constructivist learning (D. R. Garrison, 2011).

The community of inquiry (CoI) first proposed by Garrison, Anderson, and Archer (2000) maintains that social presence, cognitive presence, and teaching presence are key components of a meaningful educational experience within the context of online learning. The research questions posed for this study are informed by the CoI framework and by human-computer interaction (HCI) as a sub-discipline of information systems (IS). The phenomenon under investigation seeks to understand both the design and use/impact of social media within online distance-based education. Adaptive structuration theory (AST), as it positions and describes linkages between individuals, technology, and context; helps to focus the scope of objects and relationships that are examined.

Qualitative case study methodology is an ideal approach to conducting this research as there are not discrete entities being studied that can be divorced from their natural setting (B. Kaplan & Maxwell, 2005; Merriam, 2009; Yin, 2009). As case studies collect, synthesize, and analyze data such as observations, interviews, and documents, this is an appropriate method to gain a rich understanding of the phenomenon and the people directly involved (Creswell, 1998; Merriam, 2009; Yin, 2009), which in this case is the educational experience of students from their perspective.

2. CHAPTER TWO: LITERATURE REVIEW

2.1 OVERVIEW OF LITERATURE REVIEW

Before discussing the design of the study itself in Chapter 3, it is important to first review the necessary literature that informs, or is otherwise related to, this research. I begin first by presenting Human-Computer Interaction (HCI) as the sub-discipline which provides the boundaries for my research. I discuss the major tenets of the field, as well as where my study fits into them.

The next three sections allow me to explicate important concepts that my research is concerned with. First, I write about learning and educational very generally, providing an overview of what learning is, differing conceptualizations of it, and its relation to education. While learning itself is not, per say, under direct scrutiny in my dissertation; it is an implicit part of the educational experience. Next, I introduce the role that technology plays in respect to education and learning. This consists of discussing the use and impact of instructional media; and describing, comparing, and contrasting online and blended learning. Finally, I address social media as a technology with potential to influence education.

Lastly, I present two sections that detail the conceptual framework of my dissertation research. The Community of Inquiry framework is presented first, detailing the three main components of it: cognitive presence, teaching presence, and social presence. Second, I describe adaptive structuration theory by explaining why it is important, how the theory came to be, and how it has evolved into the extended form that I apply in my research. This

lays the groundwork for a further discussion in Chapter 3 about how the philosophical assumptions of both of these theories are consistent with a qualitative case study.

2.2 HUMAN-COMPUTER INTERACTION

Hewett et al. (1992) assert that as a discipline, HCI is “concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them” (as cited by Zhang et al., 2002, p. 335). The conceptualization of HCI that informs this dissertation is derived from the work of Zhang and Li (2004) and subsequent scholarship that supports their perspective (e.g., Zhang & Galletta, 2006; Zhang & Li, 2005; Zhang, Li, Scialdone, & Carey, 2009). This purports that HCI, as a sub-field of IS, is concerned with “the ways that humans interact with technologies for various purposes” (Zhang & Li, 2005, p. 228).

Based on this view, the two core components of HCI are humans and technology. The study of interaction typically considers how one or more aspects of these two components interact for a particular purpose within a specific context. Interaction is investigated in terms of both the design and use (and/or impact) of an information system (Zhang & Li, 2004, 2005). Consideration of the human in HCI research may focus on demographics, physical or motor abilities, cognitive issues, or affective and motivational aspects; while technology is defined broadly to include a range of characteristics based on hardware, software, procedures, data, information, applications, or knowledge.

In a research commentary of mine (Scialdone, 2010), I proposed a visual model (extended from the work of Zhang and Li) to assist scholars in situating HCI research in such a way that addresses design and use/impact within the four main tenets of the sub-discipline:

human, technology, context, and task. This model is reproduced below (Figure 1) as a basis to explain how the present study is situated within HCI scholarship.

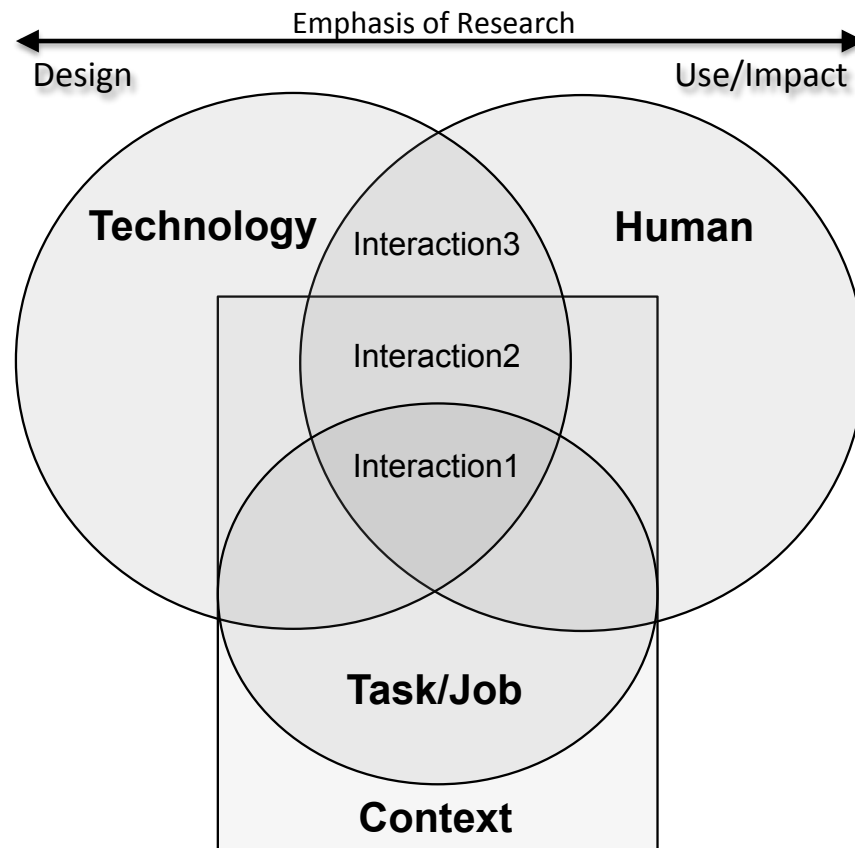


Figure 1: Visual Model for HCI Research (borrowed from Scialdone, 2010)

Benbasat (2010) observed “to be interesting and relevant (to practice) research in HCI should have a design component coupled with an evaluation of this design” (p. 16). As per the visual model above, I assume that design and use go hand-in-hand. Use is necessarily an element for evaluating a design; while investigating use and impact facilitates the construction of design-informed theories. Accordingly, the bi-directional arrow above the diagram indicates that research emphasizing design has more of a focus on technology, while that emphasizing use/impact makes more of an investment in understanding human

factors. As HCI research falls within one of the three categories of interaction above, scholarship within the sub-discipline should not have a focus that is exclusively on human tasks within a given context; nor should there be an exclusive focus on technology design for a particular job within a specified context. The key here is that HCI scholarship needs to consider *both* human use/impact and technology design features, even if one of these two components has more of an emphasis than the other.

To be clear, my view of design is also consistent with Zhang and Li (2004) who describe it as “various system elements (devices, graphics, dialogs) for humans to interact with” (p. 129). Thus, design is concerned with features and characteristics of technology that humans can perceive and/or interact with directly. In other words, design in HCI considers only that which humans can sense and actively experience, not “under-the-hood” factors which users are generally unaware of.

At the heart of this model are three distinct ways to consider interaction, which are designated as such to as to explicate how one may situate his or her research in relation to the tenants of HCI. Accordingly:

The numerical designations do not signify my assertion of one position’s superiority over another. Rather, my purpose is to highlight that interactions (and hence HCI phenomena) only happen when a human comes into contact with a technology, whether it be while engaging in a specific task situated within a given context (Interaction1), a specific context without a defined task (Interaction2), or free of context and task (Interaction3) (Scialdone, 2010, p. 146).

This model is not meant to represent actual technology use, but rather for positioning HCI research with the assumption that *interaction* as the nucleus. For example, the area

designed Interaction3 is not meant to imply that interaction can happen independent of context and task, but rather that research within this category is geared toward application to a variety of contexts and tasks. For example, Zhang (2008) provided a set of 10 general technology design principles to foster human motivation. Research like this sways more toward the design side of Interaction3 as the focus is on characteristics of technology. I position her research here because the tenets of task and context are not ignored, they are simply not specified by her research model. She explains that “a principle may belong to the ‘should apply,’ ‘should not apply,’ or ‘may help if applied’ category” (p. 66), and that these categories are determined by attributes of the environment (context) and task in which use is happening.

I am investigating the educational experiences of actors in distance-based and blended higher-education courses based on the design features of social media. While use and impact is of paramount importance to understanding educational experience, my overall aim, in terms of research contribution, is to provide an explanation as the relationship between the design features of social media and the use/impact these have on students. Thus, in positioning my research within the tenants of HCI, there is a lean toward the technology (and thus design) side of the diagram shown in Figure 1. To make this clearer, a white “X” serves to denote the orientation of this research below in Figure 2.

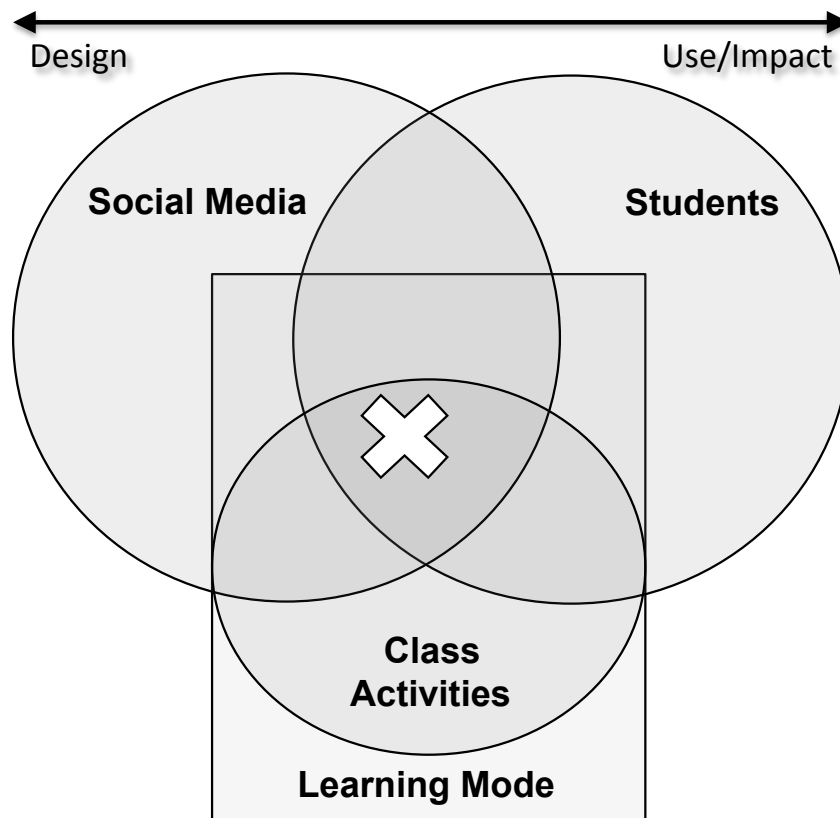


Figure 2: Positioning Study within the Visual Model for HCI Research

My study falls clearly within the bounds of Interaction1 as this implies that task/job are specified, as well as is the context. Correspondingly, I collected data on students using social media within a given learning mode (distance-based or blended) engaging in specifically determined class activities (discussions). Because context and tasks are well-defined ahead of time, this helps to focus the nature of data collection and analysis (as explained in Chapter 3).

2.3 UNDERSTANDING LEARNING AND EDUCATION

Interaction between individuals through computer-mediated communication is a defining element of the Community of Inquiry (CoI) framework first introduced in Chapter 1. CoI

posits that at the intersection of three interrelated elements (social, cognitive, and teaching presence) is a meaningful educational experience. The framework “does not exclude the consideration of intended learning outcomes, (but) the focus has been consistently on the nature of the educational transaction” (Akyol, Arbaugh, et al., 2009, p. 124). Yet by its formal nature, education carries connotations of having structure imposed through tasks that draw attention to, emphasize, or exhibit “some feature of what has to be learnt and putting the learner in a position where his experience is likely to become structured along desirable lines” (Peters, 1967, p. 9).

While learning outcomes are not a key area of interest for the original research presented in this document, it is nevertheless useful to discuss conceptualizations of learning as a main drive of educational institutions since the CoI framework is derived from a constructivist perspective. There are a number of different definitions of learning that one can consider when talking about learning. These are rooted in different paradigms and address different levels of specificity.

For example, Gagné (1984) precisely defines learning as “a change of state of the human being that is remembered and that makes possible a corresponding change in the individual's behavior in a given type of situation,” which is “brought about by one or more experiences that are either the same as or that somehow represent the situation in which the newly acquired behavior is exhibited” (p. 377). Taking a page from Piaget, Kolb and Kolb (2005) define learning as the process of relearning, where by one assimilates “new experiences into existing concepts and accommodating existing concepts to new experience,” and “is best facilitated by a process that draws out the student’s beliefs and

ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas” (p. 194). Meanwhile, Oakshott (1967) broadly declares that “learning is the comprehensive activity in which we come to know ourselves and the world around us” (p. 156).

2.3.1 CONCEPTUALIZATIONS OF LEARNING

I adopt a constructivist perspective (or what some may term a collaborative or social constructivist perspective) of learning as a guide for my study as the CoI framework is based on this particular learning paradigm. While it is therefore necessary to discuss this paradigm, it is helpful to briefly touch upon the assumptions behind other popular paradigms to elucidate how this research positions learning within the context of an educational experience.

Hung (2001) writes that there are four major models of learning: behaviorism, cognitivism, constructivism, and social constructivism. As the term “behaviorism” implies, scholars adopting a behaviorist perspective have emphasized that psychology should be bound by cause and effect, that is, stimulus and the resultant observable behaviors. Within this vein, the learning process is focused on “forming connections between stimuli and response” (Bransford, Brown, & Cocking, 2000, p. 6). Thus “behaviorists claim that observable behaviour indicates whether or not the learner has learned something, and not what is going on in the learner’s head” (Ally, 2008, p. 19). While early behaviorist perspectives maintained that individuals were motivated to learn through primary drives (much like sleep or thirst) and through external rewards and/or punishments, later

conceptualizations within this paradigm also accounting for internal mental states (Bransford et al., 2000). This leads to the paradigm of cognitivism.

Cognitivism evolved out of behaviorism, through the work of Edward C. Tolman who found that while running mazes, rats learned certain patterns, and developed specific mental representations of activities (Hung, 2001). Under the cognitivism model, the mind is an information processor, comprising long and short term memories which store knowledge as a series of representations, which can be extracted when necessary. Thinking is conceived of as a process by which individuals actively manipulate representations of the world around them (Winograd & Flores, 1986). Thus, cognitive theorists consider learning to be an internal procedure that relies on an individual's information-processing capabilities, the effort she or he puts forth, and their existing knowledge (Ally, 2008).

The constructivist model considers not interactions between the environment and a human, but rather stresses how the mind constructs knowledge (Hung, 2001). Under this paradigm, learning is a very much an active process rather than the passive acquisition of knowledge (Ally, 2008). Meanwhile, Hung (2001) characterizes social constructivism as emphasizing that critical role that other people play in one's own construction of knowledge. In this sense, "human learning is human languaging, the exchange of conversation and dialogue" (p. 282). This is within the vein of what Garrison (2011) claims is the collaborative constructivist perspective of Dewey (1938), which will be elaborated upon as I discuss the CoI framework shortly.

2.3.2 RELATIONSHIP BETWEEN (EXPERIENTIAL) LEARNING AND EDUCATION

Peters (1967) contends that if one is educated, there is an implication that he or she has succeeded in completing certain designated activities and tasks that have been engaged in mutually with the involvement of one or multiple teachers for an extended period of time. He concedes that formal education is not a prerequisite for learning to happen. Similarly, Gagné (1989) asserts that “educated persons” is the aim of education. He explains that we can “recognize an educated person by what he does - by the products he creates, the communication he utters, the choices of actions he makes”. Learning, in his view, has a transformative impact on people that is observable, and is made possible through education. While learning outcomes are outside of the scope of the research in this document, these are integral for many researchers (such as Gagné) and are often used to evaluate the quality of education by scholars and practitioners alike.

Learning, as a natural human activity, does not require a teacher. One can learn by herself or himself through books, experience, practice, or the like. It may result in mere awareness on one end of the spectrum, to being able to fully understand and explain something when required to do so (Oakeshott, 1967). Still, in order for a student to become “formally educated,” she or he must actively be conscious of what must be mastered and understood within an institutional context. Thus, participating in formal education necessitates some degree of intentional focus by the student on what is to be learnt (Peters, 1967).

Gagné (1989) observes that “philosophers and scholars from Plato onward, not to mention a number of national commissions and committees, have reasoned about educational goals” (p. 497). Barr and Tagg (1995) argue that traditionally, colleges have been institutions that

existed “to provide instruction. Subtly but profoundly we are shifting to a new paradigm: A college is an institution that exists to produce learning” (p. 13). Under this argument, formal collegiate education should play an active role in facilitating students’ co-creation of knowledge rather than simply instructing them as to what they need to know to succeed. This favors more of a collaborative constructivist paradigm over information dissemination. This mode was first championed by Dewey (1938) as “experiential learning” whereby “learning is an active process of constructing rather than acquiring knowledge” (Hung, 2001, p. 282).

Within this perspective, education must consider how students can be acquainted with materials in a way that provides personal relevance and meaning. Dewey’s (1938) primary assertion is that experience is crucial to this. If students do not see relevance to their coursework, or are presented materials without proper context, it can instill unmotivated and disjointed views of the world as, in fact, some experiences can be miseducative. Therefore, he urges, it is education’s responsibility to provide students with fruitful experiences that will live on in subsequent experiences. Thus, attention and care must be devoted to providing conditions that create experiences that relate to worthwhile meaning.

However, Orr (1991) writes that education does not guarantee wisdom, knowledge, or prudence. He argues that education, continued in its current state within the confines of 4 walls with students being lectured, to will only produce more of the same as that which preceded it. This will only induce passivity in students. Rather, they need to be taught in ways that stretch beyond the content of their courses. He advises that more information (in

which he means more available data) should not be assumed to imply an increase in knowledge, just as learning does not automatically make us better people.

Dewey's conceptualization of experiential learning, according to Itin (1999), is best thought of as a philosophy about education. While experiential learning may be something that occurs at an individual level, experiential education has to take into account the "larger system level issues of education such as the socio-political-economic elements in the learning environment" (p. 92). The importance of interactions between the learner and other learners, the learner and instructor(s), and the learner and his or her environment are deep tenets of this philosophy.

The Association for Experiential Education (www.aee.org) is a non-profit organization dedicated to the promotion of experiential learning. On their website they list 12 principles of experiential education. I have summarized the most fundamental here to provide a broad overview:

- Experiential learning results when activities are chosen to support reflection, critical analysis, and synthesis ("What is Experiential Education," 2012).
- The learner must be actively engaged in "posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, and constructing meaning," through learning tasks they perceive to be authentic, leading to personal experiences that "are personal and form the basis for future experience and learning" ("What is Experiential Education," 2012).

- Opportunities for learners and educators to examine and explore their own value are supported, while recognizing that the outcomes of experience in education are unpredictable ("What is Experiential Education," 2012).
- Educators are mindful to recognize spontaneous opportunities for learning experiences, strive to not influence the learner by their own pre-conceptions or biases, and actively take on a role to facilitate the learning process through posing problems, supporting learners, and setting boundaries ("What is Experiential Education," 2012).

This approach to education is a clear deviation from the information dissemination mode. This reinforces what Barr and Tagg (1995) denote as the "Learning Paradigm" whereby students are co-producers in the process of learning, and therefore need to have responsibility in this. This paradigm "creates environments...that bring students to discover and construct knowledge for themselves" (p. 15). Some argue that digital environments, which is the focal context of this research, can be ideal spaces for supporting experiential education (e.g., D. R. Garrison, 2011; D. R. Garrison et al., 2000). This leads to notions that technology can influence the way that people think and learn, and hence, how we can use technology for the purposes of education. However, as Falbel (1991) is quick to point out, "the problem with asking questions regarding 'the effect' of 'the computer' is that such questions presume that the computer itself can somehow directly affect thinking and learning, that the computer, by sole virtue of its being a computer, can change the way people think and learn" (p. 29). Thus, because my study examines at great length the

interactions of students with technology, it is necessary to discuss the relationships between learning, education, and technology.

2.4 LEARNING, EDUCATION, AND TECHNOLOGY

2.4.1 INSTRUCTIONAL MEDIA USE AND IMPACT

Reiser (1987) provides a brief history on the background of computer-assisted instruction, explaining that computers first came to be used for training and education in the 1950s by researchers at IBM. They developed the first computer-assisted instructional languages and programs for use in schools. In the 1960s, several institutions had begun to conduct research on the development of computer-assisted instruction, often through cooperation with private industries. By the 1970s, the introduction of microcomputers was attractive to a number of educators “because these devices were relatively inexpensive, were fairly compact, and could perform many of the instructional functionalities of large computers” (Reiser, 1987, p. 31). It was from this point forward that computer-assisted instruction began to creep into classrooms.

“One of the major questions of educational technology,” writes Gagné (1974/1989) “is how can the ‘things of learning’ best be employed to promote learning’? There must be some reason why these ‘things’ have come to be viewed as having advantages for student learning” (p. 529). Of course, today we tend to think of computer hardware, software, and mobile devices as the primary types of instructional media. Yet, nearly three decades ago, Reiser and Gagné (1983) defined instructional media as “the physical means by which an instructional message is communicated. Thus, by our definition, an instructor, a printed

text, a slide/tape presentation, and the many other physical means by which as instructional message is communicated, are all considered media” (p. 5).

Gagné (1974/1989) maintains that instructional media should be chosen for instruction based on the intended learning outcomes, and at what stage students are at in the learning process. The outcomes he identifies are information, intellectual skills, cognitive strategy, motor skills, and attitude (Gagné, 1973/1989); while the learning stages (or events as he calls them) are “(1) introducing the learning; (2) guiding the initial learning; (3) promoting retention and transfer; or (4) providing for performance and feedback” (Gagné, 1974/1989, p. 540) Accordingly, “it is reasonable to suppose that for a given instructional task, and a given group of learners, various media will differ in terms of their instructional effectiveness” (Reiser & Gagné, 1983, p. 7)

While Gagné’s outcomes and stages are not directly pertinent to this research, examples of their relationship to instructional media serve to highlight how different media can have different impacts. His first example begins with what he calls “the most familiar ‘things of learning’ - the book” (Gagné, 1974/1989, p. 536). He maintains that books are best at fostering learning when the outcome is that of learning information. He contrasts this with noting that books are a poor choice if the intended outcome is for improvement of motor skills. He advises that “reading the description of how to operate a typewriter, for example, may be of some initial aid, but can in no way be sufficient for the acquisition of the skill” (Gagné, 1974/1989, p. 536).

With respect to the learning process stages, he notes that both books and television are unable to support the performance-feedback portion (Gagné, 1974/1989). This is because

neither media has the functionality to provide this. It may set up opportunities for feedback, but it cannot deliver it. In terms of outcomes, television, he maintains, is poor for motor and intellectual skills as these are ascertained and honed through direct practice. However, television may help to provide initial guidance, and this could supplement other media for these outcomes. Meanwhile, he claims that attitudes are the best outcomes through this medium as “people can be shown in realistic settings engaging in activities that exhibit the choices they are making, and being gratified or rewarded for choices of the personal act,” as such programs “can be used to establish and reinforce the socially desirable attitudes and values approved by the larger community” (Gagné, 1974/1989, p. 538).

In addition to media being chosen based on intended outcomes or the stage in the learning process, Palloff and Pratt (2003) encourage educators to make instructional media choices based on being mindful that a class may be populated with students who have different learning styles. The styles they list are: visual verbal (preference for reading), verbal-nonvisual (preference for graphics/diagrams), auditory-verbal (preference for listening), tactile-kinesthetic (preference for physical, hands-on activities), logical-mathematical (preference for reasoning, logic, and numbers), interpersonal-relational (prefers working with others), and intrapersonal-relational (preference for reflection and working with others). Thus, an instructor may choose to include a lab based on outside fieldwork in order to meet the needs of those who have a tactile-kinesthetic preference; while streaming audio may be the best choice for students with a auditory-verbal preference.

I call attention to these because there are many different criteria that educators, or a given institutional curriculum, may employ to determine media choice for the delivery of educational content. One might consider learning styles (Palloff & Pratt, 2003), learning outcomes, or learning stage (Gagné, 1974/1989; Reiser & Gagné, 1983). The common thread, however, is that the characteristics of a medium are what, ideally, determine why the medium is chosen; whether it is meant to address a certain style, outcome, or stage.

Yet, a different position comes from Clarke (1983) who, based on meta-analyses, asserts that there are no conditions under which media influence learning. He calls into question the impact of unique media attributes explaining that, “even in the few cases where dramatic changes in achievement or ability have followed the introduction of a medium...it was not the medium that caused the change but rather a curricular reform that accompanied the change. The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition” (p. 445).

Clarke (1994) later elaborates that “many very different media attributes accomplish the same learning goal,” (p. 22). His example is that of the ability for television and movies to “zoom” in on the details of an object, which he counters is only one of many equally effective means to highlight details, as other media can do so in different ways. Thus, “if there is no single media attribute that serves a unique cognitive effect for some learning task, then the attributes must be proxies for some other variables that are instrumental in learning gains” (p. 22). Kozma (1994) agrees with Clarke that sufficient evidence has yet to emerge to show media enhances learning; however, he has a more positive outlook in

expressing optimism “that with careful consideration of cognitive processes, we will find a critical connection between media attributes and learning” (Clarke, 1994, p. 27).

In a similar vein, Papert (1991) states that technological and scientific progress has changed some human institutions such as surgery, transportation, and telecommunications; but some human activities cannot be affected in and of themselves by technology. Eating, for example, he states “is a natural act that can be supported and modified by the technology around, but doesn’t depend on it and doesn’t change radically through its influence” (p. 17). Similarly, learning is a natural act even that can be influenced, but not changed when technology is introduced. Papert is careful to elaborate that while computers themselves are not agents of change in the classroom, they can serve as “the medium through which different forces for change can express themselves with special clarity” (p. 25). This perspective is echoed by Falbel (1991) who argues that computers “can be used to write with, or to draw with, or to calculate with, or to store and retrieve information with, or to solve certain types of problems. One learns by doing these things and by thinking and reflecting about what one does. There is nothing magical about the computer in all of this. Like a pencil, it can be a ‘convivial tool.’” (p. 31).

Falbel (1991) notes that the term “convivial tool” was coined by social critic and philosopher Ivan Illich to refer to those which afford a human both autonomy and freedom. Falbel argues that it is largely the social arrangements around a tool that provide its conviviality, rather than something inherent in the tool itself. He quotes Illich (1973) as follows: “tools are intrinsic to social relationship. An individual relates himself in action to his society through the use of tools that he actively masters, or by which he is passively

acted upon. To the extent that he masters his tools, he can invest the world with meaning; to the degree that he is mastered by his tools, the shape of the tool determines his own self image,” and that “tools foster conviviality to the extent to which they can be used, by anybody, as often or as seldom as desired, for the accomplishment of a purpose chosen by the user” (Falbel, p. 32 quoting Illich 1973, pp. 22-23). As a convivial tool, computers should not constrain the user, but rather widen her or his choices.

The Community of Inquiry (CoI) framework (D. R. Garrison et al., 2000) is consistent with this view of computing technology as a “convivial tool” in that social arrangements, and the social affordances of technologies, are one of the three major constructs that contribute toward meaningful educational experiences (Rourke, Anderson, Garrison, & Archer, 2001). In regard to arguments that educational media does not enhance learning because of no notable unique cognitive effect (Clarke, 1983, 1994), the CoI framework contends that cognitive presence can be facilitated by instructional media (D. R. Garrison, Anderson, & Archer, 2001); but this is distinctly different from explicitly claiming that instructional media is a casual agent. In fact, as Clarke (1983) suggests that curriculum changes are the true nature of improved learning when new media are introduced, the CoI framework takes this into account by considering the nature of teaching presence into account (T. Anderson, Rourke, Garrison, & Archer, 2001).

The CoI framework, as previous noted, is not based on learning outcomes, nor does it directly take into account learning styles. It is used, however, as a conceptual structure through which to critically evaluate students’ educational experiences based on three dimensions of presence. In this way, the framework is not making claim that media are

changing how people learn, but rather, it is much more in line with the view of media as a convivial tool (Falbel, 1991). Before further elaboration on the CoI framework, it is necessary to discuss two learning distinct contexts in which instructional media may be employed: distance and blended learning classes. Both contexts are relevant to this study, and so they are addressed here.

2.4.2 ONLINE AND BLENDED LEARNING

Papert (1991) observes that, in fact, technology often does nothing more than to reinforce the current system. He writes, "I've seen models of a school of the future in which there's a computer on every desk wired up to the teacher's computer, so that the teacher can see what every child is doing. And then the teacher's computers are wired up to the principal's computer, so the principal can see what every teacher is doing. And all the principals are wired up to well, you know where" (p. 25). The fear that Papert expresses about technology acting to simply reinforce the current state of education, as opposed to being appropriated for novel purposes, is echoed by several scholars (e.g., Brown, 2006; Lee & McLoughlin, 2007; Malloy et al., 2001; Porter, 2006; Weigel, 2005).

Both Brown (2006) and Coffman and Klinger (2008) define the newest generation of learners as "digital natives", those who "seamlessly work with technology to gather, analyze, and synthesize information, and then present it in new and innovative ways" (Coffman & Klinger, 2008, p. 29). They argue that learning environments of the 21st century should give these "digital natives" a sense of immersion with tools to manipulate, assimilate, and change learning content in ways that are creative and foster new understandings of

material. A constructivist learning approach arguably allows students to take what they learn in digital environments and transfer it into their real lives (Brown, 2006).

Garrison (2011) expresses a sense of optimism that electronic learning (e-learning) technologies signal a (potential) paradigm shift in the production and delivery of educational materials. He defines electronic learning (e-learning) technologies “as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge” (p. 2). These are also known by other names such as Internet learning, tele-learning, distance learning, web-based learning, virtual learning, distributed learning, and computer-assisted learning (Ally, 2008). Accordingly, “the two primary applications that constitute e-learning are online and blended learning” (D. R. Garrison, 2011, p. 2).

2.4.2.1 Distance-Based Online Courses

While a number different terms exist for e-learning, they all imply some type of separation between the student(s) and the instructor, mediated by some form of communication technology (Ally, 2008). Simonson et al. (2003) define this mode as “institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors” (p. 7-8). It is necessary to point out that distance may refer to more than just physical location, as a separation in time also exists as a form of “distance” between students, classmates, and instructors.

Over the last 10 years or so, a set of instructional technologies commonly used for e-learning purposes has been Learning Management Systems (LMS) such as Blackboard,

Angel, or WebCT (which may also be referred to as course management systems [CMS], e-learning systems, or a variety of other names). These may be used to conduct a course entirely online with students geographically distributed (e.g., Allen & Seaman, 2007; C. Gunawardena, Lowe, & Carabajal, 2000; Palloff & Pratt, 2003) or to complement traditional face-to-face classes to varying degrees (e.g., Abraham, 2007; Akyol & Garrison, 2011; Vaughan, 2007, 2010). The latter is often referred to as blended learning (Stacey & Gerbic, 2007) and will be addressed in more detail in the next sub-section. Here, I focus on the mode in which course content is delivered entirely online where students are geographically distributed.

Simonson et al. (2003) explain that the concept of distance education goes back to at least 1840 when shorthand instruction was offered via their postal system. A number of institutions had adopted this system in the late 19th century, offering a myriad of subject matter. Some were geared toward the pace of the student, while others followed rigid weekly schedules. In the 1920s, over a hundred and fifty radio stations helped to broadcast materials for distance courses over the airwaves in the U.S., and in the 1950s, some television stations began broadcasting college credit courses. Courses offered exclusively through computer-accessed networks originated about the mid 1980s.

Allen and Seaman (2011) report that at least 31% of all students in higher education today have taken a minimum of one online course, and increase from 25% two years prior (Allen & Seaman, 2010). Also of note, while 51% of for-profit higher-educational institutions reported that online learning was an important component of their long-term strategies in 2009, 69% reported so in 2011 (Allen & Seaman, 2011), indicating the increasing

recognition of the popularity and possibilities of distance-based online courses.

Interestingly, while 2/3 of chief academic officers believe that learning outcomes for online courses are either on par with, or superior to, face-to-face classes, less than 1/3 of chief academic officers “believe that their faculty accept the value and legitimacy of online education” (Allen & Seaman, 2011, p. 5).

Meanwhile, a meta-analysis by the U.S. Department of Education in 2009 (with a revised version produced in 2010) looked at over 1,000 studies about online learning between 1996 and 2008. The results of this meta-analysis reports that “when used by itself, online learning appears to be as effective as conventional classroom instruction, but not more so,” (Means et al., 2010, p. xviii).

From a scholarly perspective, there is much criticism directed at online learning largely because of the sentiment that it perpetuates the Information Dissemination paradigm in education. This is similar to the worry expressed by Papert (1991) over 2 decades ago that instructional technology would be used to simply reinforce the current system. Despite having written about the lackluster affordances of LMSs over a decade ago, Malloy et al.’s (2001) evaluation is still accurate for the LMSs used today (at least based on my personal experience with them). They state that components of an LMS are minimally comprised of communication functions, such as discussion forums, chat applets, email, and distribution lists; content-delivery functions that distribute text, simulations; and multimedia programs, as well as administrative tools. They note that an LMS allows instructors to create and administer the content much in the same way as they would in a traditional classroom. These software suites restrict the instructor’s perception about online pedagogy, and thus

they disregard any possibilities that are not obviously promoted by the software suite's features.

Within a similar vein, Preece (2000) writes that "unfortunately some instructors see online education as a forum for the dissemination of knowledge, precluding the classroom in favor of the computer. Sadly, this uninspiring method of teaching is even welcomed by some, who see it as a fast way to get a degree or training qualification without leaving the comfort of their armchair" (p. 55). She advises that thanks to the web, students are able to become involved in projects in ways that were not so easy to before. She cites student-built public artifacts as being one such example. Additionally, she points out that "more and more, professors are having to accept that their role is to guide students to meaningful learning activities, rather than to provide knowledge" (Preece, 2000, p. 56).

Wagner (1994) observes that our fascination with the potential of technology frequently eclipses practical use of it. She urges that "interest in technologies should focus on this ability to expand opportunities for interactive communication," (p. 7) in regard to learning and teaching dynamics. Similarly, Simonson et al. (2003) argue that that "the instructional environment should be viewed as a system, a relationship among and between all the components of that system – the instructor, the learners, the material, and the technology" (145). They recommend that courses previously taught in a physical, face-to-face mode necessarily must be retooled; activities need to be planned that encourage maximum interactivity between the components of the system; and that student group work is necessary for creating the a supportive social environment.

Yet, time and again, there are examples of digital technologies simply being used to reinforce familiar, information-dissemination modes of instruction. Atwell (2007) also criticizes LMSs because they contain all of the materials and discussions for one class in an isolated virtual space where learning and interaction are supposed to occur. But his criticism doesn't stop there, pointing out that when Second Life, a popular open-ended virtual social world opened up, universities tended to buy virtual islands and simply recreate their brick and mortar forms in virtual reality. He encourages digital technologies for online learning that engage communities of learners, as this is how students in higher-education prefer to experience instruction. As evidence, he refers to studies where disadvantaged students were given computers to use freely. Consequently, these students ended up engaging frequently in communal discussion forums as a major learning resource.

Preece (2000) advocates the use of instructional technologies which support student-centric learning, whereby they can work independently as well as in groups. However, she notes that the key is to develop learning communities where students are able to support one another. This keeps them involved and connected, and facilitates student-instructor feedback. She notes that distance education tools can be used "creatively" and combined with "conventional communication techniques" to become a thriving community. This notion of combining media and conventional communication techniques is given much more explicit consideration in regard to blended courses, as these courses are not held entirely in a mode where class members are continually geographically-distributed.

2.4.2.2 Blended Courses

In a review of scholarly educational literature, Oliver and Trigwell (2005) sum up the use of the term “blended learning” by describing it as “ill-defined and inconsistently used. Whilst its popularity is increasing, its clarity is not. Under any current definition, it is either incoherent or redundant as a concept” (p. 24). The various “blends” of technology may mix traditional learning with online learning, online learning and face-to-face interaction, different context such as study and work, different learning theories, different types of ICTs, different objectives (skills and knowledge-based outcomes), and pedagogic approaches (Oliver & Trigwell, 2005).

Similarly, Aycock et al. (2002) explain that there is no single, standardized approach to blended courses. At a minimum, they even reported that one instructor considered his/her class a hybrid when replacing the last 30 minutes of a weekly course with online work to compliment the in-class discussions. Stacy and Gerbic (2007) write that the term “blended learning” has been used in describing various combinations of teaching and learning strategies made possible through interaction with ICTs. However, there are many different possible combinations of teaching strategies, learning designs, and types of ICTs.

Accordingly:

The term ‘blended learning’ is being used to describe the combination of modes of learning and teaching made possible through the mediation of ICT. Such a term needs careful definition and study as there are many different combinations of media, learning designs and teaching strategies encompassed in the concept. The blending of pedagogy and technology has produced a number of approaches to teaching and learning not always consistent in their effectiveness and quality of learning (Stacey & Gerbic, 2007, p. 166).

Stacey and Gerbic (2007) broadly define the term to mean that “ICT may be used to either enhance the dominant mode of face- to-face on-campus interaction or may provide a blend of synchronous and asynchronous media (that can also include face-to-face classes) to complement a dominant mode of distance education” (p. 168). Similarly, Ginns and Ellis (2007) define it as “learning activities that involve a systematic combination of co-present (face-to-face) interactions and technologically-mediated interactions between students, teachers and learning resources” (p. 234).

So and Brush (2008) see blended courses as a natural extension of instructional technologies. The first generation of such consisted of one-directional correspondence-based education through delivery methods such as radio, television, or mail. They characterize the second as distance-based, and relying on a single computer or web-based technology such as an LMS, while “the third generation is blended learning, characterized as maximizing the best advantages of face-to-face learning and multiple technologies to deliver learning” (So & Brush, 2008, p. 321). Of note, they highlight that the term “hybrid learning” is synonymously with “blended learning” as many scholars simply prefer one term over the other.

Garrison and Kanuka (2004) write that there is obvious appeal for educators to “blend learning,” combining the strongest elements of synchronous (face-to-face) and asynchronous (text-based Internet) instruction. Yet, on the other side of the coin, they point out that “there is considerable complexity in its implementation with the challenges of virtually limitless design possibilities and applicability to so many contexts” (p. 96). They posit that accordingly, there are no two blended learning designs that are identical, and that

the real challenge lies in the successful integration of the effective components of synchronous and asynchronous, not just adding on to one with elements of the other. They stress that instructional technology should facilitate an educational experience that is both independent and collaborative.

Kember et al. (2010) state that universities are increasingly encouraging instructors to blend ICTs with face-to-face classes, but provide no meaningful rationale for doing so, nor any type of useful guidelines to do so effectively. Furthermore, instructors may believe that learning activities and discussions are easier to do in class, and so they only use ICTs for delivering information. Or, Kember et al. (2010) muse, it may be simply because the Information Dissemination paradigm is their preferred, comfortable approach to teaching.

Meanwhile, Aycock et al. (2002) report that in their research, they have found that faculty have claimed to see improvement in student engagement between blended and fully face-to-face classes, with students doing a better job learning material, mastering concepts, writing, and applying what they've been taught in blended-learning environments.

However, Voos (2003) cautions that "it is likely not the 'blendedness' that makes the difference, but rather the fundamental reconsideration of the content in light of new instructional and media choices. When we simply try to replicate the classroom course in a blended course (or online), breakthroughs do not occur" (p. 5). This is similar to Clarke's assertion noted above that improved learning outcomes following the introduction of new instructional media are most likely the product of curricular changes as opposed to cognitive influence of the media (Clarke, 1994).

Correspondingly, Garrison and Kanuka (2004) make the claim that “blended learning does not represent more of the same. It is not just finding the right mix of technologies or increasing access to learning, although a secondary outcome may be increased efficiency and convenience for students and professor. Blended learning inherently is about rethinking and redesigning the teaching and learning relationship” (p. 99) In other words, it should be transformative in higher education, facilitating communities of learners who can become cohesive in face-to face contexts, but reflective and critical thinkers with online discourse. However, “more evidence-based evaluative research is needed that provides some indication of how the on-line part of the whole blended experience of student learning is contributing to the quality of student learning in higher education” (Ginns & Ellis, 2007, p. 63).

Despite varying views on both distance-based online and blended learning, Garrison and Kanuka (2004) paraphrase Marshall McLuhan in stating that “it is not enough to deliver old content in a new medium. We must seriously reflect on how to design and deliver higher education.” (p. 99). A necessary step toward this goal of maximizing the educational gains of instructional media is rigorous scholarly research. The research in this document looks at both online and blended contexts for the sake of scope, as will be elaborated upon in Chapter 3. Even though my study is not a comparison, my findings may make claims to particular media affordances that are mediated by the nature of context. Therefore, it is helpful to briefly touch upon some noted highlights about instructional media in both distance-based online and blended courses as observed in the literature.

Stacey and Gerbic (2007) conducted qualitative case studies of one class that was blended (predominantly face-to-face but accompanied with collaborative online assignments outside of class) and one that was predominately online (with groups of students communicated and collaborated on projects via an online discussion space). In the blended class, they found that students' interactions with other students online promoted an enhanced engagement with course concepts, and a deeper understanding of course materials. Other affordances came in the shape of improved discussions as students had time to reflect before participating. There was also an increase in the number of participants than what was seen in the physical class sessions.

Interestingly, in the distance-based online course, Stacey and Gerbic (2007) found an unexpected layer of communication that existed outside of this online space that students relied on. Messages on the board were often used to coordinate phone calls and faxes. Yet those who faced long-distance charges made more effort to utilize the online communication space. While phone calls are not exactly face-to-face interactions, they do illustrate that students may not have perceived that message boards as a medium were sufficient to communicate with their peers. Accordingly, across both classes Stacey and Gerbic (2007) found that students "expressed an understanding of the benefits of both online and face-to-face interaction and chose, where possible, to blend these modes" (p. 173).

Meanwhile, Winterbottom (2007) reports on a survey of a class of 105 students, in which a face-to-face class had 8 of 20 lectures delivered electronically either through screencasts or podcasts. Student satisfaction and attitudes were then addressed in the survey. Eighty-five

percent of the students responded positively, 8% were ambivalent, while 7% had negative reactions. Students with positive reactions most frequently cited the flexibility of time as one key factor in their satisfaction. They also reported being able to take more detailed notes and learning more. Being able to rewind and review points was noted to be helpful for students. There were also comments about not being distracted by other students. However, the author also calls attention to the fact that this format did not allow students to seek clarification from the instructor on learning materials. She states “students miss the interaction not only with the lecturers, but also with the other students. Clearly, this method of teaching is not to be used to replace face-to-face teaching time, but it could be used to provide much of the theoretical material for a course” (Winterbottom, 2007, p. 8)

Abraham (2007) did an experiment comparing a traditional 13 week management course with one that adopted a blended approach. Both classes were instructed by the same teaching faculty, and the length was the same. Under the blended approach, the students met face-to-face three times, and then interacted via an LMS (WebCT) for discussions, lectures, assessments, and workshops. He reports that there was significantly improved test results in the blended learning course, attributed to flexible times in which they could engage in extra learning opportunities. He also reports that the blended class had an increase in motivation. From this he concludes that “overall, the findings reinforce the view that a blended learning environment promotes student-centered learning by empowering students to take more responsibility for their learning and to increase the involvement and participation necessary for that learning” (Abraham, 2007, p. 10)

Regarding the contexts of distance-based online and blended courses, Graham and Dziuban (2008) note that “in a completely online course, the computer-mediated discussion may be valued as the only means of human interaction, while in the blended context learners might perceive it as a low-fidelity, time-consuming channel for communication. Faculty and learners will take advantage of the opportunities in their learning environments based on their expectations, goals, and understanding of the learning possibilities within the environment” (p. 274).

While online courses have faced much scrutiny in the scholarly literature, Kember et al. (2010) maintain that there have been “few attempts to empirically test learning outcomes from blended learning environments. Evaluation of sites commonly focuses on soliciting feedback on technical features or seeks views on students’ satisfaction with the experience of using the site” (p. 1185). This sentiment is echoed by Graham and Dziuban who assert that there is “only a small (but growing) body of research is specifically related to blended environments. We need more research on the design of blended environments and how instructors and learners engage in the act of teaching and learning in these environments” (p. 274).

The CoI framework, which is addressed next, has been utilized as a lens through which to investigate educational experience in both distance-based online and blended contexts.

2.5 COMMUNITY OF INQUIRY

The Community of Inquiry (CoI) framework is a theoretical model (D. R. Garrison, 2011) which presumes that “a worthwhile educational experience is embedded within a CoI that is composed of teachers and students – the key participants in the educational process” (D.

R. Garrison, Anderson, & Archer, 2000, p. 88). Referring to the work of Dewey (1916, 1938), Garrison (2011) explains that the principle of interaction between community members unifies both the objective (social) and subjective (personal) worlds; and that through this interaction meaning and knowledge are constructed, confirmed, and shared. Accordingly, “an educational experience has a dual purpose. The first is to construct meaning (reconstruction of experience) from a personal perspective. The second is to refine and confirm this understanding collaboratively within a community of learners” (D. R. Garrison, 2011, p. 10).

Garrison et al. (2000) identified three core components for an education experience: cognitive presence, teaching presence, and social presence. Their model “assumes that learning occurs within the Community through the interaction of (these) three core elements” (D. R. Garrison et al., 2000, p. 88). They developed the framework by first conducting a thorough review of literature from communications and distance education that focused on text-based communication. For each of the three types of presence, categories were developed with specific indicators so as that evidence of these presences could be identified in text-based communication contexts. A graphical representation of the framework is provided below in Figure 3.

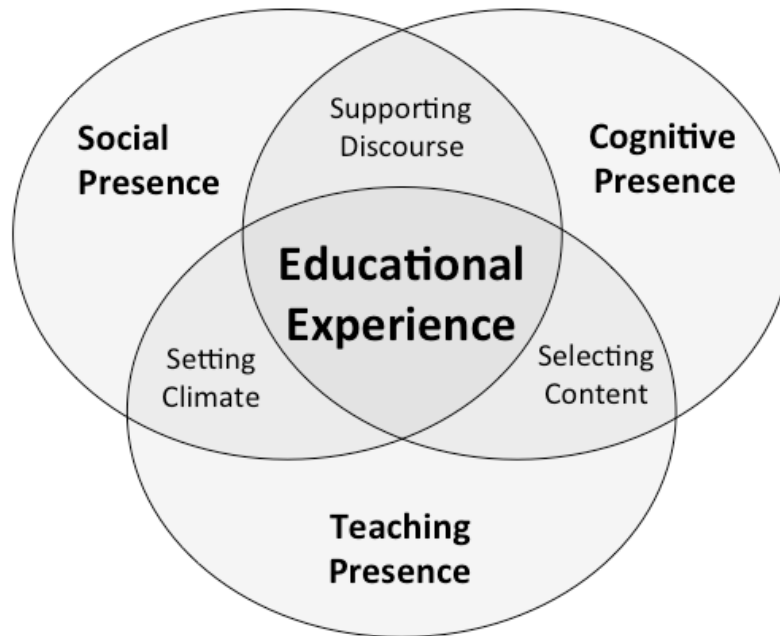


Figure 3: Community of Inquiry Framework (as adapted from Garrison et al. [2000])

Garrison et al. (2000) conducted initial work on the model within the framework of a graduate-level program. Their original intent was to provide the framework “to guide research into the optimal use of computer conferencing as a medium for realizing educational goals in a distributed learning context” (p. 103). Although later, Garrison (2011) advocates its potential for guiding research in blended-learning environments. Garrison et al. (2010) explain that “considering the lack of comprehensive theoretical models of online learning at the time this research began, the CoI framework and its associated methodology was designed for exploratory and descriptive studies” (p. 8).

The framework of the Community of Inquiry (CoI) “is generic in that it is conceptually grounded in theories of teaching and learning in higher education” (D. R. Garrison, Anderson, et al., 2010, p. 6). More specifically, it is rooted within the collaborative

constructivist philosophy that is associated with John Dewey (D. R. Garrison et al., 2000; D. R. Garrison, Anderson, et al., 2010). Garrison (2011) writes that Dewey (1938) considered transactional communication to be the defining element of education experience in that through the process of communicating, students are able to take information from others and rebuild it into knowledge that has personal value and application. This notion of transactional communication, Garrison (2011) argues, “fits with the complex shifting of time and place that defines e-learning and further emphasizes the importance of communication with the various human participants and through the technologies that constitute the environment” (p. 10).

Before elaborating on the elements of the CoI framework, it is helpful to point out a common misconception about constructivism as made by Bransford et al. (2000). They explain that people sometimes interpret constructivist theories of knowing to mean “that teachers should never tell students anything directly but, instead, should always allow them to construct knowledge for themselves. This perspective confuses a theory of pedagogy (teaching) with a theory of knowing. Constructivists assume that all knowledge is constructed from previous knowledge, irrespective of how one is taught (e.g., Cobb, 1994) —even listening to a lecture involves active attempts to construct new knowledge” (p. 11)

With a community-based emphasis, the CoI framework assumes that *the defining component of educational experience is transactional communication*. It is through communication, after all, that students transform inert information acquired from others, and construct it into knowledge that has both personal value and applicability (Dewey, 1916; D. R. Garrison et al., 2000). Furthermore:

Larry Hickman (1990), head of the Dewey Center in Carbondale, argues that Dewey understood 'knowing as a technological artifact' (p. 16). Hickman argues that Dewey's entire philosophy can be understood as a philosophy of technology. Tools are enduring and intelligent answers to persistent cultural questions. But if cultures are to progress productively as well as persist reproductively, they must continuously be retooling- that is, reconstructing entrenched social structures and functions" (J. Garrison, 1995, p. 733).

The tools that support a community of inquiry, at least as far as Garrison et al. (2000) are concerned, are computer-mediated text-based conferencing software. Regarding the ability for these tools to support a meaningful educational experience, they write that "it is generally true that written communication tends to be both more complex and more explicit than oral communication, as measured by various linguistic indicators" (D. R. Garrison et al., 2000, p. 91). While the framework was constructed to allow researchers to identify the three types of presence in text-based transcripts, researchers have applied it to blended-learning environments (e.g., Akyol & Garrison, 2011; Akyol, Garrison, et al., 2009)

Garrison and Kanuka (2004) explain that blended learning is particularly effective at maintaining a sense of community. The face-to-face element, they argue, may strengthen this sense; while complex issues may most effectively be discussed through multiple asynchronous communication channels as students have time to reflect on, and compose their thoughts. Additionally, many ICTs allow a permanent log of discussions for future reference and reflection. On the other side, they note that there tends to be more enthusiasm and energy in face-to-face discussions which may be contagious and motivational.

Regardless of the learning context, Garrison (2011) maintains that within the CoI framework “represents a process of creating a deep and meaningful (collaborative constructivist) learning experience through the development of three interdependent elements—social presence, cognitive presence and teaching presence. A presence is a sense of being or identity created through interpersonal communication” (p. 22). Accordingly, I conceptualize presence as a value-based concept. That is, a given medium, or features thereof, may facilitate varying degrees of a given presence. These presences are addressed in detail below, and will ultimately form the backbone of my study’s analytical framework.

2.5.1 COGNITIVE PRESENCE

Hung (2001) summarizes constructivist assumptions about learning as follows: “(1) Learning is an active process of constructing rather than acquiring knowledge; (2) Knowledge can be socially constructed where the social interactant may include just oneself; (3) The interpretation of knowledge is dependent on (a) the prior knowledge and beliefs held in one’s own mind and (b) the cultural and social context through which the knowledge was constructed” (p.283). These assumptions are important to note as cognitive presence is aligned closely with the reflective thinking model espoused by Dewey (1933). Garrison (2011) states that “critical or reflective thinking is integral to inquiry,” as this “both authenticates existing knowledge and generates new knowledge which suggests an intimate connection with education” (p. 43).

Although mentioned above, it bears highlighting again to clarify that the CoI framework is not one that emphasizes learning outcomes. The critical inquiry model which represents cognitive presence “focuses on higher-order thinking processes as opposed to specific

individual learning outcomes” (D. R. Garrison, et al., 2001, p. 8). This is not to say that outcomes necessarily should be ignored by educational researchers, as the process of critical thinking is expected to allow students to acquire deep and personally meaningful understandings of the world which include specific skills, abilities, and dispositions. However, Garrison et al. (2001) maintain that “judging the quality of critical thinking as an outcome within a specific educational context is the responsibility of a teacher as the pedagogical and content expert” (p. 8).

Garrison et al. (2000) cite the work of Newman and colleagues (Newman, Johnson, Cochrane, & Webb, 1996; Newman, Webb, & Cochrane, 1997) in observing significant differences between critical thinking when comparing computer-mediated and face-to-face seminars. They elaborate:

Newman and his co-authors created indicators that reflected deep or surface learning approaches. For example, in the exploration phase, positive (deep) indicators would be “welcoming new ideas” or “linking facts, ideas, and notions” and negative (surface) indicators would be “putting down new ideas” or “repeating information without making inferences.” Each of the transcripts from face-to-face educational seminars and computer conferences were analyzed by classifying each statement according to the indicators...More specifically, computer- conferencing students more often brought in outside material and linked ideas to solutions while face-to-face students were slightly better at generating new ideas. Consistent with this finding, computer-conferencing students were found to be less interactive. Students said less but the level of critical thinking was higher. This raises the question as to whether computer conferencing encourages more convergent, in-depth thinking, while face-to-face seminars might seem to facilitate more and divergent (i.e., creative) interaction. These results

also point to the need for effective teaching presence, to encourage active discourse and knowledge construction (D. R. Garrison et al., 2000, p. 93).

The distinct ability for instructional media to affect the learning processes of students comes from a study conducted by Kember et al. (2010) who examined 21 courses that made significant use of the Internet (in the form of some type of CMS) for “more than posted material and announcements. Examples of design components included content that was more interactive or significantly enhanced for an educational purpose by the use of media, and the incorporation of active forums” (p. 1185). They found that when CMS features were used in a way that simply presented information, there did not seem to be any major impact on learning outcomes. Rather, implementation of ICTs for learning are most effective when there are features and opportunities for students to engage actively in learning activities or meaningful content-related discussions.

Based on a model originally proposed by Garrison (1991), Garrison et al. (2000) present the model of critical inquiry to help explain, from a constructivist perspective, how students construct knowledge in a community of inquiry. It consists of four phases: a triggering event, exploration, integration, and resolution. The model assumes that the personal worlds of students have an iterative and reciprocal relationship with the shared world of the community. Thus, individual reflection and group-based communication has a sense of synergy to it. The critical inquiry model is reproduced here in Figure 4.

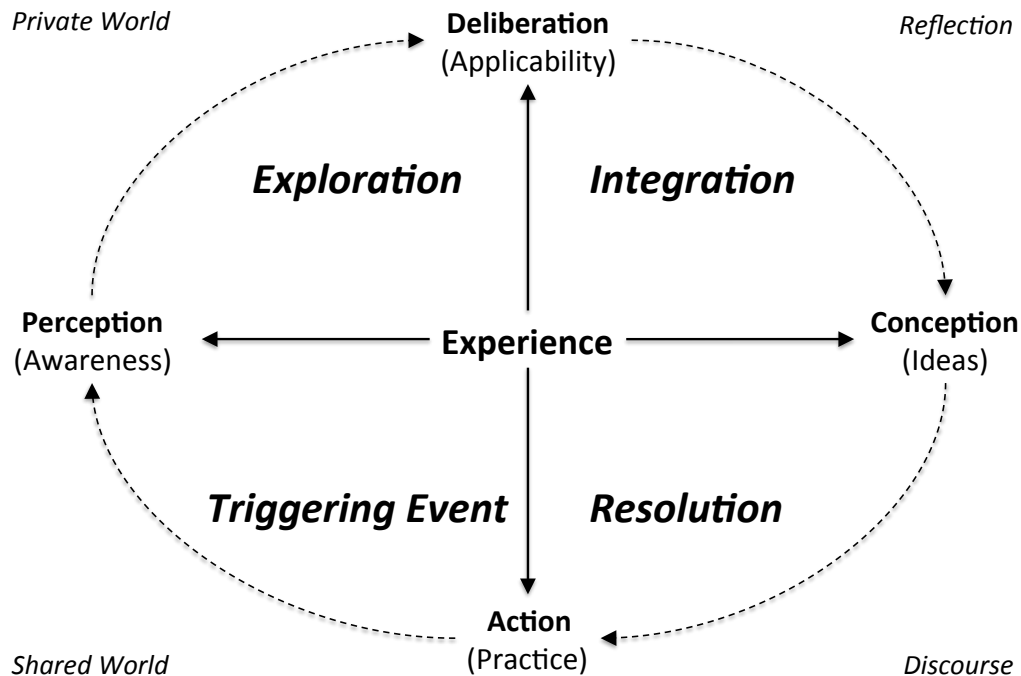


Figure 4: Critical Inquiry Model (adapted from Garrison et al. [2000])

While it is a circular, iterative process, the critical inquiry process begins in the lower left quadrant of Figure 4 with a **triggering event** situated in the shared world of the community of inquiry. Ideally, “this would be a dilemma or problem that students could relate to from their experience or previous studies” (D. R. Garrison, 2011, p. 46). The interrelated nature of the constructs of the CoI framework become apparent here as it is typically the instructor who facilitates the initiation of this phase (teaching presence), which happens within a group context (social presence). However, depending on the nature and structure of a particular course, any member of the class may intentionally or indirectly share information in the social discourse that, in turn, acts as a triggering event (D. R. Garrison et al., 2001). Indicators of this phase consists of recognizing the problem and expressing a sense of puzzlement (D. R. Garrison et al., 2000; P. Shea, Hayes, et al., 2010).

Exploration is the next phase in the critical inquiry process. The notion behind exploration is that a student comes to be aware (that is, to perceive) the nature of a problem as presented in the triggering event. She or he then begins searching for pertinent information and potential explanations (D. R. Garrison, 2011). This may happen through largely private activities (like searching through relevant literature) or through group-related activities (such as brainstorming). In this way, students “shift between the private, reflective world of the individual and the social exploration of ideas” (D. R. Garrison et al., 2001, p. 10). The indicators of exploration consist of students exploring within the online community, or within a single message; the exchange of information; suggestions of ideas; and leaping to conclusions (D. R. Garrison et al., 2000; P. Shea, Hayes, et al., 2010).

In the third phase, **integration**, students start to construct meaning based on ideas that were generated during the previous exploratory phase (D. R. Garrison et al., 2001).

Although integration is considered to be a very reflective stage, students are simultaneously engaging intimately with a critical, social discourse that helps in shaping their own individual understanding of the materials. In other words, there is a overlapping shift in between deliberating and constructing knowledge at an individual and group level. Of this stage, Garrison (2011) writes “it may be during this phase of the inquiry that the characteristics of e-learning come to the fore. The reflective and explicit nature of text-based communication may well facilitate deep and meaningful learning outcomes” (p. 47).

Evidentiary indicators in this phase come in the form of integration of ideas among members of the community, individualized integration of ideas in a single message, synthesizing various ideas, and proposed solutions (D. R. Garrison et al., 2000; P. Shea, Hayes, et al., 2010)

The final phase of the conduct of inquiry is that of **resolution**. This may be characterized by constructing a solution to the initial problem that has contextual specificity to it, or through the creation of a meaningful framework that helps to reduce the complexity of the problem (D. R. Garrison, 2011). Resolution is typically recognized through either vicarious or direct action. It is usually possible for individuals to test out a solution by practical application in most non-educational contexts. However, within an educational context, resolution usually happens more vicariously through “experiments and consensus building within the community of inquiry” (D. R. Garrison et al., 2001, p. 11). Yet, the affordances of e-learning environments may make it more possible for students to directly apply and test solutions as students may be engaging with the course material while situated within a family or work context. Garrison (2011) further notes that “in good educational environments, as in real life, resolution is seldom fully achieved. Inevitably, results of the resolution phase raise further questions and issues, triggering new cycles of inquiry and, thereby, encouraging continuous learning” (p. 47). The two indicators identified by Garrison et al. (2000) and Shea et al. (2010) for this phase are the defending of proposed solutions by students, and vicarious application of solutions.

Heckman and Annabi (2003) compared discourse between students in a face-to-face mode (FTF) and an online text-based discussion mode (which they term asynchronous learning network, or ALN). They utilized a slightly modified version of the CoI framework with an fourth major category added to capture discourse characteristics, that is, who was talking to whom, and some of the linguistic attributes. They report that on “the average FTF discussion there were nearly twice as many instances of cognitive process as in the average ALN discussion. In FTF discussions, the instances of cognitive process were predominantly

in the lower order exploration category. In contrast, the ALN discussions contained more high-level cognitive process instances, both in absolute and relative terms.” (p. 6). This lends support to notion that computer-mediated communication, by its nature of supporting reflexivity on the part of students, may support the critical thinking processes (e.g., D. R. Garrison et al., 2000; Kember et al., 2010; Newman et al., 1996; Newman et al., 1997).

Further evidence of this notion comes from Akyol et al. (2009) who compared distance-based and blended courses in regard to the CoI indicators. They explain that previous studies on the CoI framework had reported that exploration was the most frequently observed practical inquiry phase. Unexpectedly, integration was found most salient in this study in both courses, but it was significantly higher in the blended courses. The authors posit that this may be because discussions were started in the face-to-face component, meaning that the triggering event and exploration occurred offline; whereas the online component was utilized in a manner that emphasized reflection on the part of students. Resolution was least commonly observed in both classes, largely because this was likely expressed mostly in their individual projects handed in to the instructor.

Garrison and Kanuka (2004) argue that a blended learning context may provide learners with increased control and a sense of independence necessary for a metacognitive understanding of critical thinking, that is, it can further critical thinking by providing students with reflective time to learn how to learn. Still, it is important to re-emphasize that conclusions about cognitive presence in face-to-face, blended, or online classes should not be based solely on the media used for class discourse. There is a great deal of influence of

cognitive presence based on the other types of presence, which are also, in turn, supported a varying levels dependent on the medium. For example, Garrison and Cleveland-Innes (2005) concluded that cognitive presence is not simply enough to support higher-order learning as “teaching presence in the form of facilitation is crucial in the success of online learning” (p. 136).

2.5.2 TEACHING PRESENCE

Peters (1967) observes that while learning might be characterized without making reference to teaching, teaching cannot be accurately characterized without describing its relation to learning. Indeed, as explicated above in the discussion about cognitive presence, it is typical through teaching presence that a trigger event begins (D. R. Garrison, 2011). Teaching presence is defined by Anderson et al. (2001) as “the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes. Teaching presence begins before the course commences as the teacher, acting as instructional designer, plans and prepares the course of studies, and it continues during the course, as the instructor facilitates the discourse and provides direct instruction when required” (p. 5).

Cooperation among students is a key aspect of the learning experience as it induces involvement in subject matter through the sharing of ideas, and responding to those of others. Rather than listening to lectures and rote memorization to be reproduced on assignments, students must talk and write about subject matter, and be able to find application to their past experiences or its relevance in their day-to-day lives (Chickering & Gamson, 1991). While this sense of cooperation is fostered through a sense of community

(social presence), it is nonetheless the teacher's responsibility to ensure that this is happening, and that the learning activities in the course are sufficient to facilitate high-levels of critical inquiry (D. R. Garrison, 2011).

Shea et al. (2003) maintain that the 7 principles for good educational practice laid out by Chickering and Gameson (1991) are directly applicable to the design of good learning environments advocated by Bransford et al. (2000). These principles consist of "(1) frequent contact between students and faculty; (2) reciprocity and cooperation among students; (3) active learning techniques; (4) prompt feedback; (5) time on task; (6) the communication of high expectations, and (7) respect for diverse talent and ways of learning" (Chickering and Gameson, 1991 as cited by Shea et al., 2003, p. 64). Accordingly, Shea et al. place the responsibility for ensuring these principles are enforced into the hands of instructors. Thus, they advocate that for a high quality educational experience to occur, there needs to be a strong sense of teaching presence.

In refining the notion of teaching presence, Anderson et al. (2001) explain that their initial categories and indicators for teaching presence came from a thorough review of literature related to online teaching. The indicators of teaching presence were tested and refined through content analysis of computer-conferencing transcripts in higher education (D. R. Garrison et al., 2000). It has also since been vetted and further honed through the likes of Shea and colleagues (P. J. Shea, Fredericksen, et al., 2003; P. J. Shea et al., 2006; P. J. Shea, Pickett, et al., 2003) who developed a survey instrument to measure students' perceptions of teaching presence in a variety of contexts. While teaching presence tends to be primarily the responsibility of the instructor, students themselves may also present teaching

presence based on what experiences they bring into the conversation (T. Anderson et al., 2001; D. R. Garrison, 2011).

Garrison (2011) observes that “there is remarkable consistency across the literature as to the categories of teaching presence associated with an e-learning context” (p. 55). His own work posits that there are three such categories (design and organization, facilitating discourse, and direct instruction) while Shea et al. (2010) present a fourth (assessment). In order to maintain a sense of consistency with the original framework, I do not include this fourth category here. Although, it should be noted that this fourth category consists primarily of various types of feedback, which is more generically addressed under the category of direct instruction.

The first category is indicative of the macro-level structure of a course, focusing on the **design and organization** of it overall. Garrison (2011) maintains that this step is more effort in an e-learning context than it would be for a similar course in a face-to-face setting. The reason for this, he argues, is because it is necessary for instructors to consider how to maximize the components of instructional media to best support the material they plan to present. Furthermore, if the instructor has relied entirely on lecturing in the past, he or she is additionally faced with learning how to smoothly use the technologies. The indicators of this category of teaching presence are setting the curriculum, designing methods for participation in learning activities, establishing time parameters, establishing netiquette (the etiquette for online discussions), and providing macro-level comments about the content of the course (T. Anderson et al., 2001; P. Shea, Hayes, et al., 2010)

Anderson et al. (2001) state that the next category, **facilitating discourse**, “is critical to maintaining the interest, motivation and engagement of students in active learning. We use the term discourse rather than discussion to highlight the focused and sustained deliberation that marks learning in a community of inquiry” (p. 7). This is also a recognition of the role that a community plays to an individual's personal constructing of meaning, and the role that others play in shaping and confirming a mutual understanding of knowledge. Garrison (2011) states that “this element represents the fusion of purpose, process, and outcome. It is where interest, engagement, and learning converge” (p. 58). The specific indicators of facilitating discourse are identifying areas of agreement/disagreement, seeking consensus, acknowledgment and encouragement of student contributions, setting learning climate expectations, prompting discussions (or follow-up discussions), focusing (or refocusing) discussions, and summarizing discussions. (P. Shea, Hayes, et al., 2010).

The next category of teaching presence, **direct instruction**, has a micro-level focus on specific course content (D. R. Garrison, 2011). This recognizes that in any context, the role of the instructor will, to at least some extent, require hands-on instruction that relies on his or her specific pedagogical expertise, and require instruction that is specific to the content of the course (T. Anderson et al., 2001). Garrison, noting that some scholars and practitioners downplay the importance of the instructor in e-learning contexts, notes that pure facilitation limits the educational experiences of students. In fact, “such a laissez-faire approach misinterprets the collaborative constructivist approach to learning and the importance of systematically building learning experiences (i.e., scaffolding) to achieve intended, higher-order learning experiences” (D. R. Garrison, 2011, p. 60). The indicators for direct instruction are presenting content and questions, providing valuable analogies,

offering helpful illustrations, making clarifications, confirming understandings with feedback or assessment, diagnosing misconceptions, interjecting outside materials, and responding to technical concerns (D. R. Garrison, 2011; P. Shea, Hayes, et al., 2010).

While the CoI framework was developed to address online educational experiences, the impact of teaching presence also bears consideration. In this respect, Garrison and Kanuka (2004) write that “teaching presence manages the environment and focuses and facilitates learning experiences. With the combination of synchronous verbal and asynchronous written communication in the context of a cohesive community of inquiry, blended learning offers a distinct advantage in supporting higher levels of learning through critical discourse and reflective thinking” (p. 98).

Of note, Heckman and Annabi (2003) looked at the differences between teaching presence in face-to-face and online discussions. They found that teaching presence tended to be more salient in face-to-face discussions. However, over half of the instances of teaching presence observed online came from students themselves instead of the instructor. Similarly, Akyol et al. (2009) found that while it was not significantly different, there was still less student-related teaching presence in their comparison of an online and blended course. They muse that the reason for this may have been that their sharing of resources and knowledge was split between face-to-face interactions and online posts, whereas the online-only students performed these actions entirely online.

Another curious example of teaching presence comes from Stacey and Gerbic (2007) who observe that in a blended class, “while the teacher encouraged everyone to go on line and clarified the task and expectations, more important connections were made for the

students when the teacher commented in class on the online discussions and introduced activities which were designed to develop the kinds of cognitive skills that the debate required. Through such actions, the students were able to connect the online discussions to their learning, and in the absence of overt teacher presence online” (Stacey & Gerbic, 2007, p. 170)

The examples above indicate that different class members may display different amounts (or types) of teaching presence based on the role of media in a course (and by logical extension, perhaps even what type of medium is used). These also serve to once again emphasize that there is an interconnectedness among the elements of the CoI framework as Shea et al. (2006) found that there was a significant relationship between sense of community for students, and their perception of a strong teaching presence. They assert that students are more likely to feel a sense of learning (cognitive presence) and connectedness (social presence) in those classes where an instructor actively works to orchestrate and guide discourse.

2.5.3 SOCIAL PRESENCE

At the core of Dewey’s philosophy is “his argument for the natural origin of language in shared behavior...pointing, looking and grasping, as meaningful activities and not merely random behaviors, are themselves socially constructed by mutual assistance and understanding (coordination) within a shared context that establishes intersubjective, and in that sense objective, reference” (J. Garrison, 1995, p. 722). This is congruent with the need for the establishing a sense of social presence within a community of inquiry. Social presence was defined in the original CoI framework “as the ability of participants in a

community of inquiry to project themselves socially and emotionally, as ‘real’ people (i.e., their full personality), through the medium of communication being used” (D. R. Garrison, et al., 2000, p. 94). However, Garrison (2011) later clarifies that “social presence in an academic context means creating a climate that supports and encourages probing questions, skepticism and the contribution of explanatory ideas. Sustaining critical thinking and discourse requires a sense of belonging that must develop over time” (p. 32).

The notion of social presence can be traced back to the work of Short, William, and Christie (1976) who state that varying degrees of social presence can be achieved based on the communication medium involved (A. M. Kaplan & Haenlein, 2010a). Thus, closely bound to social presence is the theory of media richness which posits “that performance improves when team members use ‘richer’ media for equivocal tasks” (Dennis & Kinney, 1998, p. 256).

Daft and Lengel (1986) define equivocality as “ambiguity, the existence of multiple and conflicting interpretations”, and uncertainty as ‘the absence of information’ (p. 556). They also explain that various forms of media are able to present varying levels of informational cues based on their bandwidth. They assert that rich media, such as face-to-face or telephony decrease ambivalence because of participants’ ability to leverage paralinguistic cues, and natural language, with face-to-face being richest because one can easily include visual cues in expressing a message. Lean media, those that are limited in the ability to transfer multiple types of cues are less rich in the ability to convey message clarity (Yoo & Alavi, 2001).

Despite the connection between social presence and media richness theory, Garrison et al. (2000) are careful to point out that “we do not believe that the effect of media per se is the most salient factor in determining the degree of social presence that participants develop and share through the mediated discourse. Rather, the communication context created through familiarity, skills, motivation, organizational commitment, activities, and length of time in using the media directly influence the social presence that develops” (p. 94-95).

While Garrison (2007) recognizes the value for class members to form social bonds and communicate effectively, he states that a sense of social presence is essential as so individuals feel safe to communicate freely, and be able to stand behind common learning goals. He maintains that social presence in an academic setting should stretch beyond personal socio-emotional relationships through “intellectual focus (i.e., open and purposeful communication) and respect” (p. 63). Furthermore, it has been demonstrated that an established sense of social presence serves a strong predictor as to student satisfaction within an e-learning environment (C. N. Gunawardena & Zittle, 1997).

Rourke et al. (2001) discuss the development of the indicators of social presence for the purpose of the CoI framework as being an iterative process. First, Garrison et al. (2000) developed initial indicators and categories through reviewing pertinent literature regarding teacher presence, group interaction, and media capacity. These were then refined through an exploratory, deductive content analysis they conducted of transcripts from graduate-level computer-mediated discussions. Finally, additional indicators were added from an inductive analysis of these same transcripts. Rourke et al. (2001) maintain that based on this work, evidence of social presence indicators denotes a high level of cohesion

and interpersonal relationships, while low levels of these same indicators means that it the learning environment can be characterized as cold and impersonal. The categories of social presence put forth by the CoI framework are affective responses (or interpersonal communication), open communication, and group cohesion (D. R. Garrison, 2011; Rourke et al., 2001).

The first category, which was consistently referred to as affective communication for the first decade of research with the CoI model, is renamed as **interpersonal communication** by Garrison (2011). As affective response, these indicators were characterized by types of communication between class members that projected a sense of emotion, warmth, and overall mood (Rourke et al., 2001). As computer-mediated, text-based discussion offered a reduced number of cues for students to perceive class members as “real people”, the lack of individual personality was said to be compensated for through the use of emoticons, humor, self-disclosure, and unconventional expressions (such as repetitious punctuation) (Rourke et al., 2001; P. Shea, Hayes, et al., 2010). Such comprise the indicators for this category of social presence.

Garrison (2011) explains that these are really more accurately indicators of interpersonal communication. He states that:

After a decade of research into the CoI theoretical framework it would appear that affective responses may not be the defining characteristic of social presence. As argued previously, group identity takes precedence over personal identity. What is crucial at the outset of establishing a community of inquiry is interpersonal communication responsible for setting the academic climate for open and academically purposeful communication. Interest and persistence is essential to a learning experience that goes beyond simply attending to affective

communication. Interpersonal communication creates a climate and sense of belonging to the group and its educational goals. It is an essential facilitating condition for engagement in meaningful discourse. A respectful and supportive climate reflects the initial conditions necessary for critical reflection and discourse (D. R. Garrison, 2011, p. 38)

Despite the change of name, the indicators grouped under this category remain similar to what was espoused previously. While Garrison (2011) also includes self-disclosure and use of humor, he lists affective expression as the remaining indicator, noting that these are characterized by emoticons and conventional or unconventional emotional expressions including conspicuous capitalization and repetitious punctuation. As Garrison remains the most notable scholar doing work on the CoI, and as this category change represents the most up-to-date work on the framework, I will adopt this newer conceptualization for the analytical lens of my study (as explicated in Chapter 3).

The next category of social presence indicators, **open communication**, defines communication exchanges that are respectful and reciprocal (D. R. Garrison et al., 2000). This, Garrison (2011) argues, is a necessary prerequisite for collaborative inquiry. Such requires a learning environment that maintains enough acceptance and trust to allow members to freely question things, but also protects their senses of acceptance in the community and self-esteem. Such environments encourage interaction and reflective forms of participation. Indicators of open communication consist of continuing a discussion thread, quoting others' messages, explicit reference to others' messages, asking questions, complimenting others (or expressing appreciation for them), expressing agreement (or disagreement), and offering personal advice (D. R. Garrison, 2011; P. Shea, Hayes, et al., 2010)

Finally, **group cohesion** is the last category that represents social presence and is “exemplified by activities that build and sustain a sense of group commitment” (Rourke et al., 2001, p. 8). Garrison (2011) states that the process of critical inquiry can only happen when there is a sense of belonging to a cohesive community. This represents the dynamic state that is the ultimate aim of social presence. He elaborates that “when students identify with the group and perceive themselves as part of a community of inquiry, the discourse, the sharing of meaning and the quality of learning outcomes will be optimized” (p. 39). Group cohesion is indicated by the use of vocatives (referring to others by name), inclusive pronouns, phatics and salutations, social sharing (of information not related to the class), and reflecting on the course itself (D. R. Garrison, 2011; P. Shea, Hayes, et al., 2010).

In a study by Akyol et al. (2009) that compared the indicators of the CoI framework between a distance and a blended course, they found that some indicators of social presence were used much more strictly in the online class (in particular self-disclosure, emoticons, and humor). The authors assert that this may have been because of a greater need to establish climate. In other words, as the blended course met face-to-face, the course members might have established a sense of cohesion more easily, thus decreasing the necessity for social presence in the computer-mediate component.

Interestingly, Shea et al. (2006) also conducted a comparison between online and distance-based courses, and found that students did not report a greater sense of community based solely on the indicators of social presence. They did, however, report that when there was a strong sense of teaching presence, students claimed to experience a stronger sense of community, and also a higher perception of learning. Furthermore, “no evidence was found

to suggest that the text-based asynchronous learning environment that was the milieu of this research elicited significantly different levels of connectedness or learning by age, gender, or any of the other demographic distinctions investigated” (P. J. Shea et al., 2006, p. 185). In other words, social presence seems to be directly linked to teaching and/or cognitive presence, and not based on medium or learner characteristics.

2.6 SOCIAL MEDIA

Garrison and Kanuka (2004) “posit that blended learning is an effective and low-risk strategy which positions universities for the onslaught of technological developments that will be forthcoming in the next few years” (p. 96). Social media could potentially be one such “onslaught of technological developments” that they were referring to.

Kaplan and Haenlein (2010a) write that prior to the Internet we know today, Bulletin Board Systems allowed users to exchange messages, data, software, and news with one another. The latter half of the 90s saw a surge in the popularity of homepages, whereby individuals shared information about their personal lives. They advise that the “trend toward social media can therefore be seen as an evolution back to the Internet’s roots, since it e-transforms the World Wide Web to what it was initially created for: a platform to facilitate information exchange between users” (A. M. Kaplan & Haenlein, 2010a, p. 60). Thus, they assert that the idea of social media is far from novel.

There is debate and confusion among scholars and practitioners as to what should be included under the term “social media” or how it is different from related terms such as user-generated content and web 2.0 (A. M. Kaplan & Haenlein, 2010a). These three terms are, in fact, frequently used interchangeably in organizations and universities. In an attempt

to clarify, Kaplan and Haenlein (2010a) explain that Web 2.0 never referred to a technical specific update of the Web, but rather a shift from content and applications published by individuals, to content that could be created and continuously modified by multiple users participating in a collaborative fashion. The spread of Adobe Flash, AJAX, and RSS allowed for the ideas behind Web 2.0 to thrive. Flash allowed for animation, audio/video streams, and easy interactivity on web pages. AJAX, which stands for asynchronous java script, is “a technique to retrieve data from web servers asynchronously, allowing the update of web content without interfering with the display and behavior of the whole page)” (A. M. Kaplan & Haenlein, 2010a, p. 61).

User-generated content (UGC) describes digital materials created by end-users that are available to the general public. While Web 2.0 might be considered the technical foundation of the Social Media, UGC is how individuals make use of it. While UGC was available prior to Web 2.0, a number of factors, technical drivers (such as broadband and hardware availability), social drivers (such as more young people online), economic drivers (such as increase and cheaper availability for tools to create such content) make it considerably easier to produce and share UGC (A. M. Kaplan & Haenlein, 2010a).

Accordingly, Kaplan and Haenlein (2010a) define social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (p. 61). They further note that while a number of applications, such as YouTube, SecondLife, Facebook, and Wikipedia are widely considered to be social media, there is not a systematic way to categorize them. They make use of theories in media research to begin a classification scheme. Kaplan and

Haenlein (2010a) use social presence/media richness theories as well as self-presentation/self-disclosure theories to divide up social media into 6 categories. Table 1 presents their classification schema.

Table 1: Social Media Classification (reproduced from Kaplan and Haenlein [2010a])

		Social Presence/ Media Richness		
		Low	Medium	High
Self-Presentation/ Self-Disclosure	High	Blogs	Social Networking Sites (e.g., Facebook)	Virtual Social Worlds (e.g., Second Life)
	Low	Collaborative Projects (e.g., Wikis)	Content Communities (e.g., YouTube)	Virtual Game Worlds (e.g., World of Warcraft)

On the dimension of social presence and media richness, the former is traced back to work by Short et al. (1976) to denote the degree to which an individual can be perceived as “real” by communicating through a given medium. The latter, based on the work of Daft and Lengel (1986, 1987), considers the degree to which a medium is able to handle ambiguity and uncertainty in communication. As social presence is a construct of the CoI framework, I avoid unnecessary confusion of Kaplan and Haenlein’s (2010a) conceptualization by simply referring to this dimension as media richness.

On the dimension of self-presentation and self-disclosure, these are linked back to the work of Goffman (1959). The former represents the ability to make positive impressions on others, while the latter refers to the propensity for unconsciously or intentionally revealing personal information (A. M. Kaplan & Haenlein, 2010a)

There is a bit of a disconnect, however, between my own conceptualization of social media, and the classification scheme provided by Kaplan and Haenlein (2010a). I have not known

many people who consider virtual social worlds, or virtual game worlds, as within the umbrella of electronic environments denoted as social media. Furthermore, as Web 2.0 consists of the technical foundation for social media, there is an implication that social media can be (even if they are not always) accessed through a web browser. In my experiences with virtual social and virtual game worlds, access (as well as the sharing of UGC) typically does not occur through web browsers. While these are listed within the table above, I disregard them for the purpose of this study. Instead, I retain my focus on those social media which can be accessed through a web browser, with the most attention given to those media which were used by participants in my research.

2.6.1 COLLABORATIVE PROJECTS

The first category, collaborative projects, are those with low media richness and low self-disclosure. In this category, the main idea “is that the joint effort of many actors leads to a better outcome than any actor could achieve individually” (A. M. Kaplan & Haenlein, 2010a, p. 62). They cite wikipedia and social bookmarking noting that collaborative projects are probably the most democratic form of UGC.

Wagner (2004) recalls that Ward Cunningham created the first wiki in 1995 to communicate software design specifications for the PortlandPatternRepository. The term comes from the Hawaiian word “wikiwiki”, which means fast, referencing the speed to which one can create content using a wiki. In an interview with Cunningham (as reported by Venners, 2003), he related that his specific purpose for creating the wiki was to build “an environment where we might link together each other’s experience to discover the pattern language of programming”. He elaborated that, “people like to talk. In creating wiki, I

wanted to stroke the story-telling nature in all of us. Second, and perhaps most important, I wanted people who wouldn't normally author to find it comfortable authoring, so that there stood a chance of us discovering the structure of what they had to say" (Ward Cunningham interview by Venners, 2003).

Cunningham notes that wiki pages are free form, and they work best when one is trying to answer a question that cannot be easily posed. He notes that wikis can give voices to those who hadn't had them before. Thanks to the success of Wikipedia, the concept of a wiki as a collaborative tools has come to be widely understood (P. Anderson, 2007). Wikis, unlike blogs, usually have a rollback function which allows one to examine prior versions of a page. Thus, the history of a wiki can be examined, or a page can be reverted back to a form it was in at a specific point in time. Wikis are in a sense policed by its users, and so vandalism and mistakes can be rectified rather easily.

Wagner (2004) lists additional wiki characteristics as enabling collective authorship of web documents, use of a simple markup scheme (typically simplified HTML), ability to create new pages by making hyperlinks that point nowhere, and that content on wikis are not reviewed by anyone prior to publication. Wikis are open in that any reader can make edits to it as he or she feels fit. They are organic in the sense that the sites are able to be edited and evolve.

2.6.2 CONTENT COMMUNITIES

With a medium degree of media richness and low self-disclosure, *content communities* include the sharing of media between users, such as text, photos, videos, or even PowerPoint slideshows (A. M. Kaplan & Haenlein, 2010a). These media typically do not

require users to personalize a profile page, but when users do, it's typically only basic information that is provided. YouTube is one popular example.

Content communities are analogous to what Kennedy et al. (2007) call multimedia sharing sites. These have dramatically increased the amount of multimedia community-contributed content on the Web. Such collections are of a depth and breadth that was unimaginable before the introduction of similar sites.

Xu et al. (2008) state that one could access video online before YouTube came along, however, uploading multimedia as well as managing, sharing, and watching videos was challenging because there was not a single, integrated, easy-to-use platform. They note even, "more importantly, the video distributed by traditional media servers and peer-to-peer file downloads like BitTorrent were standalone units of content. The video was not connected to other related videos, for example other episodes of a show that the user had just watched. Also, there was very little in the way of content reviews or ratings" (Xu et al., 2008). Sites such as YouTube let users upload, share, comment on, rate, and tag videos with ease. Since videos are no longer standalone units, users are not either, enmeshing them in the fabric of groups and communities.

Lange (2007) notes that while YouTube is known primarily as a video-sharing platform, it allows users to create a personal profile page, otherwise known as a "channel page", and allows for users to "friend" one another. She writes that "the linking of profiles through friendship requests and acceptances and the ability to view the resulting connections on others' profiles are tangible mechanisms that reflect existing social networks" (Lange, 2007, p. 362).

Another example of a content sharing site is Flickr. According to Lerman and Jones (2006) the site allows users to “upload images to Flickr or view and comment on other users’ images. A user can annotate an image (usually their own) with tags. A user can also submit images to existing special interest groups, or create a new one.” (Lerman & Jones, 2006, p. 1). They advise that it is transparent in that unless a user designates specific information as private, usernames, groups names, tags, and other content is viewable by the public, and even modifiable in some cases. One can designate others as “friends” or “contacts”, offering such a stream to view the latest images submitted. Like other social media, having a friend or a contact list forms “the social network backbone of social media sites” (Lerman & Jones, 2006, p. 1). On Flickr, having a contact list facilitates the stream of information, by automatically providing new images to users from those they have designates as interesting.

2.6.3 BLOGS AND MICROBLOGS

2.6.3.1 Blogging

Kaplan and Haenlein (2010a) classify blogs with a low degree of media richness and high capacity for self-disclosure. Blood (2004) writes that the term weblog was coined in 1997 by Jorn Barger (who was an editor of one) to connote a web page where the “web logger ‘logs’ all the other Web pages she finds interesting” (p. 54). They originally consisted largely of links to other Web pages, and were thus short in nature. As they grew, individuals would add their own thoughts, or point out especially good entries that others had made on their weblogs. The distinction between blogs and previous web media is its social nature. In other words, “the medium came into existence when the set of web journal writers recognized themselves as a community” (Marlow, 2004, p. 1).

While in its infancy, blogging was only done by a handful of authors who identified their pages as weblogs. However, there were thousands of people in the mid-to-late 90s who updated their personal homepages on a daily basis (Marlow, 2004). It was the ease of publishing and distributional methods that transformed blogs a powerful and popular medium (O'Reilly, 2007). According to Blood (2004), web loggers originally hand-coded in HTML to update their sites, but late in 1999, several companies released software intended to automate publication. The most notable, Blogger, changed the entire community. It was so easy to use (billing itself as push-button publishing) that people began blogging entries that didn't even contain links. Blogs were also instrumental in the proliferation of Really Simple Syndication (RSS), which allows users to subscribe to content, being made aware of when new information is available in the form of blog posts, stock updates, weather forecasts, news streams, streams, and other types of dynamic content (O'Reilly, 2007).

Blood (2004) refers to blogs as a form of participatory media, capable of "bringing together information from many sources, revealing media bias, and perhaps influencing opinion on a wide scale" (p. 54). Marlow (2004) writes that blogs, "while fundamentally an innovation in personal publishing has also come to engender a new form of social interaction on the web: a massively distributed but completely connected conversation covering every imaginable topic of interest" (p. 1). Blogs are peer-to-peer publishing frameworks where it becomes easy to be a participant and to discuss topics through comments. They easily become "a conversational mess of overlapping communities" (O'Reilly, 2007, p. 26)

Anderson (2007), notes that blogs are typically simple web pages that contain "brief paragraphs of opinion, information, personal diary entries, or links, called posts, arranged chronologically with the most recent first, in the style of an online journal," and that most

“also allow visitors to add a comment below a blog entry” (p. 7). Posts can be tagged with keywords allowing them to be categorized.

“Blogs combine the immediacy of up-to-the-minute posts, latest first, with a strong sense of the author’s personality, passions, and point of view” (Nardi, Schiano, Gumbrecht, & Swartz, 2004, p. 42). Some people blog multiple times a day while others scarcely once a month.

Nardi et al. (2004) observe that motivations to blog might include documenting one’s life, as commentary, as catharsis, to find a muse (or being able to think through public writing), or to have a sense of belonging to particular community. Thus, they may range from journals that capture one’s daily activities, to serious critiques or commentaries of current world issues.

2.6.3.2 Microblogging (Twitter)

Interestingly, Kaplan and Haenlein (2010a) only briefly mention Twitter, and do not address at all where it falls on their classification table. Twitter is considered to be a form of “micro-blogging”, so it is addressed in this subsection. However, unlike blogs, communication on Twitter (called tweets) has a tight character limitation. While one might argue that this limitation may restrict the degree of self-presentation or self-disclosure on Twitter, it is still helpful to talk about here due to its similarity to blogging.

Costa et al. (2008) define micro-blogging as “a variant of blogging which allows users to quickly post short messages on the web for others to access,” which “can be restricted to a certain number of individuals, sent exclusively to a specific contact, or made available to the World Wide Web” (p. 2). While Twitter is not the only microblogging service out there, it is certainly the most popular. Java et al. (2001) write that microblogging is a “form of

communication in which users can describe their current status in short posts” (p. 56), and that these can be distributed a number of ways, such as through the Web or mobile devices. While Twitter restricts users to 140 characters, they note that as a rule, microblogging is less than 200 (Malloy et al., 2001)

Twitter was created in 2006 by Jack Dorsey (Hernandez, 2012). It began with a minuscule user base, but quickly grew to be the second most used social media platform (Experian, 2012). According to an article on social media new site *Mashable*, “to keep the social media powerhouse intact as more people, celebrities and world leaders find their roles in the birdcage, Twitter has evolved its aesthetics, functionality and business model” (Hernandez, 2012).

According to Twitter’s website, “Twitter is a real-time information network that connects you to the latest stories, ideas, opinions and news about what you find interesting. Simply find the accounts you find most compelling and follow the conversations” (Twitter, 2013). The messages of 140 characters or less are called tweets, and “These messages are posted to your profile, sent to your followers, and are searchable on Twitter search” (Twitter, 2013) These tools allow users a quick and light spotlight to broadcast information about their status, opinions, and activities. It is a faster mode of communication from regular blogging.

Costa et al. (2008) argue that Twitter is more than just vain comments about what someone is doing. Tweets can often become fluid dialog. As Siemens (2008) opines, “Twitter is a conversation, not a monologue.” There are a number of ways that these conversations can happen and are influenced. The following description is not exhaustive, but is based on

providing a general but sufficient overview of Twitter as to allow the reader to contextualize student use and experience with Twitter as later reported on in this dissertation.

Users can participate in micro-networks by using a special hashtag that allows for an aggregation of topical tweets, enabling more of a direct dialog, or a joint experience (Costa et al., 2008). According to Twitter's website "The # symbol, called a hashtag, is used to mark keywords or topics in a Tweet. It was created organically by Twitter users as a way to categorize messages" (Twitter, 2013). Accordingly, it is placed anywhere in a tweet before a keyword or phrase (with no spaces), and allows anyone to click on a "hashtagged" word in a message to show all the others messages on Twitter which have included that keyword. A similar technique to view conversations is that one can arrange those he or she follows into "lists", and can choose to view tweets from a given list only.

Another interpersonal technique for interaction on Twitter comes in the form of replies and direct messages. A message that contains the @ sign followed by a user name (with no space between them, such as @mjsresearcher) is directed at the indicated user. A direct message, meanwhile, are personal private messages (again, of 140 characters or less) sent between users, and unavailable for anyone else to read. Twitter describes this difference by stating that "direct messages are personal messages sent from one Twitter account to another; they do not appear in public for anyone else to read. You can only send a direct message to a person who follows you" (Twitter, 2013).

Twitter makes a distinction between "friending" someone (as described in relation to social networking sites below) and "following" someone. Their website clearly states that

following is not a mutual activity. That is, someone can choose to follow my tweets, but I can choose whether or not I want to follow theirs. This is to say that I do not have to approve their following or follow them in exchange for their readership. Twitter (2013) also allows for one to block users (disallowing them to follow), and to have a “protected account”. This option forces one to approve followers, and allows only those followers who have been approved to read his or her tweets (that is, they are not viewable publicly).

Twitter users have profile pages that are visible to others (or only those they follow if it is a protected account) where they can share some brief details about themselves. This includes a profile picture, a header picture, their name, location, website, and a 160 character bio. Users can also customize a few items on their profile page like the color of links and the page background (Twitter, 2013).

Twitter also allows users to tweet pictures and videos. These can be annotated with 140 characters. Twitter hosts images, and these appear either as links or as thumbnails. Twitter does not host videos, but links to them can be shared and the videos from approved content sharing sites (such as YouTube and Vimeo) will play as if embedded on the Twitter website.

2.6.4 SOCIAL NETWORKING SITES

Social networking sites have medium media richness and high self-disclosure. These “enable users to connect by creating personal information profiles, inviting friends and colleagues to have access to those profiles, and sending e-mails and instant messages between each other” (A. M. Kaplan & Haenlein, 2010a, p. 63). Social network sites can be described as:

Web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site (boyd & Ellison, 2007, p. para 4)

“Friends” (or contacts, or fans) make up the backbone of social networking sites, and are usually listed on someone’s profile page, indicating who he or she has chosen to connect with (boyd & Ellison, 2007). In this way, social network sites enable users to establish or maintain relationships with others, articulate social networks, and to present themselves in various fashions (Ellison, Steinfield, & Lamp, 2007).

Users create profile pages that are unique and provide personal information about oneself, typically consisting of location, age, interests, and a profile picture. The degree to which a page is public depends on the site, and user discretion (boyd & Ellison, 2007). One’s profile might include photos, audio, and/or video. While most sites require both parties to confirm the friendship, some do not.

Boyd and Ellison (2007) trace the evolution of social networking sites back to blogs, and the ability to make connections through these. There were also a number of sites between 1997 and 2001 which supported varying combinations of public friend lists and personal profiles, such as MiGente, BlackPlanet, and AsianAvenue. Following this, Ryze.com emerged in 2001 to help people connect to business networks. Friendster came about in 2002, intended to be Ryze.com’s social complement. It was designed with dating in mind, to help individuals meet friends of friends, based on the idea that these might make better romantic interests than strangers. MySpace followed in 2003 as a competitor.

Facebook and Google+ are the two best know and most popular such sites as of this writing. These descriptions are intended to further the reader's familiarity with common use and experience with these sites. I focus detail largely on characteristics which will later be most pertinent to describing my cases and findings.

2.6.4.1 Facebook

Facebook was launched in February 2004 by Mark Zuckerberg to support a virtual Harvard network, but was expanded soon to include other schools. Users had to have an email address from a supported institution to become a member. But in 2005, they began to open it up to high school students, and then professionals from corporate networks, and then eventually, it was opened up for anyone to join 2006 (boyd & Ellison, 2007; Facebook, 2013). Their stated mission is "to make the world more open and connected. People use Facebook to stay connected with friends and family, to discover what's going on in the world, and to share and express what matters to them" (Facebook, 2013)

Pampek et al. (2009) explain that Facebook allows users to select one or multiple networks to which they belong, based on their schools attended, geographic location, or (past and current) employer(s). One can designate others as "friends", an offer that the "friend" can accept or reject. Information shared between friends is controlled by unique privacy settings, and groups of friends (known as lists) may be created which have varying degrees of access to particular pieces of information or status updates. However, within the last year, Facebook has introduced a "follow" feature. Originally called "subscribe", it "allows one user to subscribe to the public updates of another. In other words, Facebook borrowed Twitter's follower system" (Scott, 2013, p. para 4).

Users maintain “profiles” which contain basic demographic information including relationship status, birthday, and so on (Pampek et al., 2009). Since late 2011, these have been renamed “timeline” which Facebook defines as a type of profile allowing users to highlight activities and events that they deem most important. Accordingly, “people choose the information they want to share on their timeline, such as their interests, photos and work history. They also control who sees each piece of content” (Facebook, 2013).

The Facebook timeline displays a cover picture which is a prominent image at the top of this personalized page. A comparatively smaller “profile picture” is embedded against the bottom left side of this, next to the user’s name. A brief overview of personal details are then displayed (such as job, location, relationship status, and education), with a link beneath to more information. Additional images alongside this personal overview may include thumbnail links to lists of friends, “likes” (described below), photos, and places visited. One can update his or her status on this page, or on the news feed page.

A news feed appears as the first page one sees upon logging in that aggregates a list of all actions friends (and other followed entities) have recently undertaken, including posting on time lines, uploading photos or videos, relationship changes, sharing links, and status updates (Pampek et al., 2009). “People can like or comment on what they see. Each person’s news feed is personalized based on their interests and the sharing activity of their friends” (Facebook, 2013). Comments on a post are viewable by anyone who is able to see the post (regardless of their relationship to the commenter). Liking is able to be done as a quick, non-textual form of showing support for content that others post. This action is manifested in the shape of a “thumbs up” icon, and one can easily see how many “likes” a

post has as the number of likes is listed under a post. Comments themselves can also be liked.

An unlimited number of photos and videos can also be uploaded, with captions added to them. Individuals in photos who are also on Facebook can be “tagged”, as so their name appears alongside the photo and as an entry on their timeline. One also has the option to display the location at which the picture or video was taken. Users can choose which individuals or groups of friends have access to view their photos and videos (Facebook, 2013; Pampek et al., 2009).

Facebook also permits users to create groups. According to Facebook (Facebook, 2013), these are “private spaces within Facebook for people to discuss common interests” Creators (and designated administrators) of groups customize privacy settings for the sets of individuals (such as family members, classmates, etc.) who have been granted access. Accordingly, within a group, people “can post updates, photos and chat with everyone at once. People can customize the privacy settings for each group they create” (Facebook, 2013). Events, which are similar to groups, allow individuals to “organize gatherings, manage invitations and send notifications and reminders to their friends. People can use events to invite their friends to anything” (Facebook, 2013).

2.6.4.2 Google+

Another, and much more recent, social networking site, is Google+, which was made public in the Summer of 2011 (Ovadia, 2011). Google+ shares many qualities (aesthetically and functionally) in common with Facebook (as well as with Twitter) (Maplesden, 2013). Just like Facebook, one can share status updates, photos, videos, and links.

Similar to Facebook's timeline, every user of Google+ has their own profile page. One can choose a cover photo, a profile picture, links to uploaded photos and videos, as well as personal details such as school, work, hometown, and relationship status (Google+, 2013). Another similarity is that instead of "liking" content on Facebook, Google+ users can choose to "+1". Both of these actions show one's approval or support (socialbakers, 2012). Additionally, that which Facebook deems "groups" has an analogue in Google+ called "communities".

What Facebook calls friends, Google+ calls contacts or followers. Unlike Facebook, but similar to Twitter, one user can "follow" another, but there does not need to be a reciprocation. Along with this, Google+ allows users to create circles which are similar to lists in Facebook:

To aid users in selectively disclosing information to common sub-groups of their network, Google+ introduced 'Circles', an intuitive mechanism for organizing contacts. Similar to 'lists' or 'groups' available in networks such as Facebook or Twitter, Circles are user- created groupings of contacts which may be overlapping or hierarchical, allowing users a great deal of flexibility in organizing their networks. Each time a user shares a piece of content, he or she makes a contextual decision about the audience with whom to share it; content can be shared publicly or shared selectively to one or more circles. Users can also share to 'friends of friends' by selecting an 'Extended Circles' option (Kairam, Brzozowski, Huffaker, & Chi, 2012, p. 1066).

By default, those who users do not follow, but are followed by, are included in a "public" circle. Accordingly, Google+ has a few other default "circles to start out with, and you can create new circles for even more flexibility" (Google+, 2013). One can choose exactly which posts, pictures, videos, and other information to share with members of a given circle, and exactly which information they receive from those in a given circle.

2.7 ADAPTIVE STRUCTURATION THEORY

2.7.1 *THE PROBLEM OF CONCEPTUALIZING INFORMATION TECHNOLOGY “FEATURES”*

There has been ongoing debates within the field of IS as to what constitutes “defining research” for the discipline. Yet, there is a general consensus that IT artifacts are at the core of any legitimate Information Systems (IS) research (e.g., Hevner, March, Park, & Ram, 2004; Orlikowski & Iacono, 2001), although there are some who argue this represents more of a gray area for the field (e.g., Whinston & Geng, 2004). Even while most agree that the IT artifact is the principle construct of interest in IS, there are a multitude of ideas about how it should be defined (e.g., Agarwal & Lucas, 2005; I. Benbasat & Zmud, 2003; King & Lyytinen, 2004)

Precisely defining the IT artifact is, admittedly difficult (albeit relevant), but outside of the scope of this dissertation. Rather, as my research aims to understand the use and impact of social media features, it is important to adopt a perspective of technology that takes a clear conceptualization of IT into account. However, this is also problematic because of the challenge in specifying what is meant by “feature”. Griffith (1999) notes that the concept of IT features is ambiguous and can be perceived at varying levels of granularity. No strong theory exists to provide researchers with a typology of features. For example, he notes that one feature of a personal data assistant may be that it accepts stylus-based input. A feature of the stylus may be that it is metallic or plastic. If it is plastic, one could consider whether it is hard or soft plastic, and so on. Similarly, a PC may be conceived as a single small node on an intranet, but may be conceived of to be an even smaller node if considered within the scope of the Internet.

This ability to abstract in or out of technology at different levels is known as the repeating decomposition problem (DeSanctis & Poole, 1994). For example, from a broad perspective “a communication medium can be thought of as a constellation of communication channels. Thus, an electronic communication medium might include electronic text, voice, and even visual channel components” (Griffith & Northcraft, 1994, p. 273). In this example, one could look at the constellation of channels as the IT artifact, and the individual components as features. Or the individual components could be broken down further, as in the example of the referenced above (Griffith, 1999).

Griffith and Northcraft (1994) state that features of a technology (such as communication media) may be described from an objective perspective (such as the rate at which information is processed) or through more subjective psycho-social characteristics (such as degree of social presence). Furthermore, Markus and Silver (2008) point out that technology can even be described in terms of properties such as color, shape, texture, mass, and so on. Additional confusion comes from the limiting ways that marketing and cognition literature (which IS has borrowed from at times) treat the notion of features. Studies from these disciplines often distinguishes products (or stimuli) as having “attributes of two types: either dichotomous features (a car has antilock breaks or it does not) or more inherently continuous dimensions (such as the level of safety provided by a given car)” (Griffith, 1999, p. 476).

The problem about nature and granularity of features is addressed by the extension of adaptive structuration theory (AST) made by Markus and Silver (2008). However, before

addressing this, it is useful to look at the underlying logic behind their extension of the theory.

2.7.2 UNDERSTANDING ADAPTIVE STRUCTURATION THEORY

DeSanctis and Poole (1994) are widely famous for repurposing Giddens' (1979, 1984) structuration theory to meet the specific theoretical concerns of the IS discipline. Jones and Karsten (2008) provide a meta-analysis of the research in the IS field which has made use of structuration theory or some IS-specific form of the theory. They explain that the relationship between society and individuals is at the heart of structuration theory in its original form. "Giddens proposes that structure and agency are a mutually constitutive duality. Thus social phenomena are not the product of either structure or agency, but of both. Social structure is not independent of agency, nor is agency independent of structure. Rather, human agents draw on social structures in their actions, and at the same time these actions serve to produce and reproduce social structure" (Jones & Karsten, 2008, p. 129). The idea here is that there is a continual creation of social structure through the flow of daily social practices.

One of the first scholars in IS to integrate principles from structuration theory into the discipline was Orlikowski (1992). Referring to Giddens (1979), she explains that structuration is a reciprocal social process recognizing that organizations have social structures that both enable and constrain human action, but that these organizational structures are begotten from human action. Standardized practices arise through habitual action from reflexive and knowledgeable actors, which in turn may become

institutionalized over time, and then may become structural properties. This is known as the duality of structure.

Regarding technological artifacts, Orlikowski (1992) maintains that technologies are inherently social. She argues that this is because they are the output of planned and coordinated human activity; and because we attach meanings to them based on the features we use and emphasize that are rooted within our social worlds. However, “once developed and deployed, technology tends to become reified and institutionalized, losing its connection with the human agents that constructed it or gave it meaning, and it appears to be part of the objective, structural properties of the organization” (Orlikowski, 1992, p. 406). Thus, there exists a duality of technology as IT both reinforces structure, and has structure imposed upon it socially.

Similar to the duality of technology, DeSanctis and Poole (1994) adopt Giddens’ structuration theory to the IS field through adaptive structuration theory (AST). At its most basic, the theory assumes that a connection exists between IT effects and socially embedded structures (Markus & Silver, 2008). As social structures are existing templates for organizational tasks and activities, these structures are incorporated into technology during the design phase. The technologies, in turn, provide a variety of possible social possibilities for interpersonal interaction. Through interaction, the structures built into technology become a part of the fabric of social life. Thus, “there are structures in technology, on the one hand, and structures in action, on the other. The two are continually intertwined; there is a recursive relationship between technology and action, each iteratively shaping the other” (DeSanctis & Poole, 1994, p. 125).

Accordingly, the use of ICTs (or what DeSanctis and Poole [1994] refer to as advanced information technologies) work to enforce social structures by providing various affordances and constraints for interaction between individuals. They explain that these social structures can be described in regard to an ICT's structural features or the spirit of this set of features. They define structural features as a specific set of capabilities, rules, and resources afforded by an ICT. These are what infuse meaning and control group interactions. Yet, most systems consist of collections of capabilities that are loosely bundled and hence, able to be appropriated in various fashions by users (Gutek, Bikson, & Mankin, 1984). It is because of the flexibility in technology use that DeSanctis and Poole (1994) propose describing it by scaling structural features. They write that this is a parsimonious approach because it allows for an understanding of ICTs on its own terms by how it is socially perceived. For example, "scaling structural feature sets in terms of restrictiveness, level of sophistication, comprehensiveness, or other dimensions, can be accomplished by consulting user manuals, reviewing the statements of designers or marketers of the technology, or noting the comments of people who use the technology" (DeSanctis & Poole, 1994, p. 126)

Meanwhile, the spirit of an ICT is given shape by the social structures that are absorbed into it during the design phase (DeSanctis & Poole, 1994; Poole & DeSanctis, 1990). Spirit is defined as "the general intent with regard to values and goals underlying a given set of structural features" (DeSanctis & Poole, 1994, p. 126). Neither the designers' intentions nor the perceptions and interpretation of users define the spirit, although these can certainly be indicators. Rather, spirit can be understood by analyzing various direct and peripheral facets such as the design metaphor behind it, features incorporated and their names, the

user interface, and associated training materials. DeSanctis and Poole (1994) assert that researchers are well positioned to uncover the spirit of a given technology, but that rather than asking questions about the appearance or components of the system to understand spirit, a researcher should ask questions which get at the goals promoted by the ICT and which values it enforces and supports.

2.7.3 EXTENDING ADAPTIVE STRUCTURATION THEORY

Nearly a decade and a half after the emergence of adaptive structuration theory, Markus and Silver (2008) proposed an extended version of the model as an attempt to clear up what they identified to be some theoretical confusion, and to help researchers hypothesize about the relationships between users and IT artifacts. They assume, as did DeSanctis and Poole (1994), that ICTs are socio-technical artifacts as they have been built by people and are hence products begotten from social processes. They note that AST's core is built around the hypothesis that there is a link between socially embedded structures and IT effects, even though this link may not be a consistent association.

While DeSanctis and Poole (1994) described IT artifacts through two concepts (structural features and spirit) Markus and Silver (2008) propose three: technical objects, functional affordances, and symbolic expressions. The first, technical objects, are conceptualized as real things, either tangible or abstract. These denote "IT artifacts and their component parts" (Markus & Silver, 2008, p. 620). They also include, as part of their definition, the outputs of information systems, such as representations, documents, transcripts, and drawings. They must generally be perceived (but not visible) in order for humans to use

them. They note that these are not based on users' perceptions as technical objects and their properties exist independently.

While technical objects are made by people through deliberate design and manufacturing, not all properties are necessarily intended (Markus & Silver, 2008). Like other "real things" technical objects have properties (color, mass, texture, volume, and so on) which may or may not themselves have causal potential. However, Markus and Silver's concept of technical objects differs from that of structural features (DeSanctis & Poole, 1994) as "the causal potential of technical objects lies not only in their functionality, but also in such other properties as their packaging, arrangement, and appearances. For instance, the bulkiness of a device, the size of a display, the color and shape of toolbar icons, and the labels on features may be consequential for how users interpret and use IT artifacts and for the effects of IT use" (p. 621). Furthermore, the repeating decomposition problem makes any analysis of technical objects inherently challenging because such can be decomposed into smaller objects and properties thereof. Therefore, functional affordances and symbolic expressions are important for understanding the relationship that technical objects have to a specified user or group (Markus & Silver, 2008).

DeSanctis and Poole (1994) proposed understanding and describing ICTs through scaling structural features. Such, they maintained, was useful because it puts a focus of attention onto what users can actually do with a system. Markus and Silver (2008) argue that this is not a sufficient approach for dealing with the problem of repeating decomposition. They assert that scaling does not address functionality in such a way that articulates the way that users appropriate technologies.

Thus, Markus and Silver (2008) introduce functional affordances to describe “the possibilities for goal-oriented action afforded to specified user groups by technical objects” (p. 622). A system that provides one individual with a specific affordance, however, may not provide an affordance for a different individual with a different set of goals. Similar to structural features, this concept address social structures supported by ICTs. However, “functional affordances differ from structural features in that the former concept is conceptualized as a relation between the object and a specified user group, whereas structural features were conceptualized as technology properties” (Markus & Silver, 2008, p. 622). In this way, the repeating decomposition problem can be managed by focusing on a narrower range of technical objects that are relevant for a given user group. While not a property of technology, per say, functional affordances are directly related to technical functionality.

The concept of spirit that was put forth by DeSanctis and Poole (1994) to capture the values, intents, and goals of the social world around IT artifact design and use. However, Markus and Silver (2008) argue that these notions of spirit are distinctly human characteristics and hence, should not be attributed to technical objects. Rather, they contend that there is “something” about an IT artifact which assists in sculpting the impressions of them that people form. Markus and Silver (2008) write that the symbolic expressions are a contributing (but not deterministic) factor to how people interpret technical objects.

Symbolic expressions are defined as “as the communicative possibilities of a technical object for a specified user group” (Markus & Silver, 2008, p. 623). This pulls from semiotic

engineering in the view that the user interface represents the designers' message to users as to how they should interact with a technical object to accomplish specific goals and/or experiences (deSouza & Preece, 2004; Markus & Silver, 2008). The notion of symbolic interaction, according to Gopal and Prasad (2000) also has its roots in long-standing sociological and social psychological methodological traditions, but has more recently been brought into other disciplines, such as IS. This takes a social constructionist perspective in that individuals and groups assign meaning not simply to linguistic symbols, but also to social interaction with humans or objects. Therefore technologies can be interpreted different ways by different groups.

Accordingly, like functional affordances, symbolic interaction is also conceptualized as a relationship between the technical objects and a specified group; although the technical object is clearly the source of symbolic expressions (Markus & Silver, 2008). The messages conveyed through symbolic expressions may or may not have been intended by designers, and so they are distinct from the intention of designers. These are also not always perceived or attended to, but rather only represent potential communications.

Markus and Silver (2008) further differentiate symbolic expressions from the spirit of an IT artifact (DeSanctis & Poole, 1994) by noting that the latter takes a holistic approach, while the former can be applied to the technical object as a whole or any of its constituent objects. Additionally, unlike DeSanctis and Poole (1994), they claim that they "do not limit the concept of symbolic expressions to the domain of values, but also use the concept to refer to expressions about functionality. For example, an artifact may express to a defined user group that it can be used to support 1) the value of democracy and/or 2) the activity of

consensus building” (Markus & Silver, 2008, p. 623). Yet, subsequent scholars have been inconsistent in their interpretation of symbolic expressions.

According to Grange and Benbasat (2010), “symbolic expressions refer to the underlying value-laden intent of a technical object that will guide use for a specific user group” (p. 4). They provide two examples: Wikipedia is a system that might communicate a sense of democracy and freedom to some users; while an Enterprise Resource Planning system might communicate a sense of control and efficiency. Grange and Benbasat posit that additional values communicated by a technical object might include hedonic expressions (such as surprise, fun, creativity, and curiosity) and/or utilitarian expressions (such as rationality, informativeness, and effectiveness).

Alternatively, Grgecic and Rosenkranz (2010) argue that Markus and Silver “mainly focus their definition of symbolic expression on the conveyance of values, even though the concept is not inherently limited to the domain of values. We argue that symbolic expressions are even more important when it comes to the conveyance of meaning” (p. 5). They go on to establish symbolic expressions are a relational concept which may be recognized in a technical object’s communication of value or communication meaning. Accordingly, “communication of values tries to answer the question what kind of values are conveyed by the IT system, whereas communication of meaning is concerned with the question if the user understands the functionalities, information, and interface of an IT system” (p. 5).

While Grgecic and Rosenkranz's (2010) examples of value-based communication are consistent with those of Grange and Benbasat (2010), their examples of meaning-based

communication are substantively different. Such might take the form of sense-making (can a user group understand signs, information, and symbols of a technical object), interpretation (can the user properly interpret these signs, information, and symbols), or any other dimension of meaning-based communication.

As will be further detailed in the methodology section of this dissertation (Chapter 3), my theoretical framework favors the value-based communicative properties of technical objects, as this is most suited to the phenomenon at hand.; namely, trying to delineate which technical objects communicate values related to the CoI framework in the form of engendering those which are social, intellectual, and instructional (or, social, cognitive, and teaching presence).

Figure 5 presents the a graphical model of these extended concepts of AST to further clarify the notions of functional affordances and symbolic expressions.

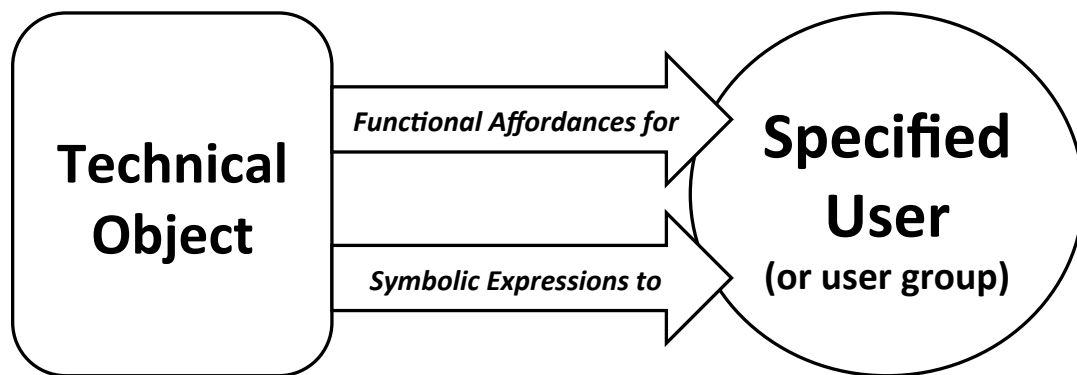


Figure 5: Adaptive Structuration Theory Extended Concepts (as adapted from Markus and Silver [2008])

2.8 SUMMARY OF LITERATURE REVIEW

Privateer (1999) argues that “it makes little sense for academia to continue a tradition of learning significantly at odds with technologies that are currently altering how humans learn and interact with each other in new learning communities” (p. 77). This precisely explicates the problem that is the driving force behind my research. Through conducting a qualitative case study, I hope to take steps toward understanding how current technologies, namely social media, influence students’ educational experiences. However, prior to describing the plan for my study, it was necessary to review the literature which is pertinent to the research described in this document.

This chapter began by taking a look at HCI as the primary disciplinary home for my research. Afterward, I provided an understanding of learning and education through conceptualizations of learning, and the relationship between these and education. Next, the use and impact of instructional media were discussed, as well as the defining characteristics of online and blended learning. Following this, I provided a clear conceptualization of social media with a classification scheme from the literature. Finally, the two theoretical frameworks which inform my study, CoI and AST, were described in detail. With the requisite literature reviewed, Chapter 3 covers the particulars of my research methodology.

3. CHAPTER THREE: CASE STUDY METHODOLOGY

3.1 OVERVIEW OF CASE STUDY METHODOLOGY

The research approach taken in this study was strongly influenced by Yin’s (2009) six steps for case studies. Figure 6 is a replica of his design model, which he describes as a “linear but iterative process” (Kindle Location 306).

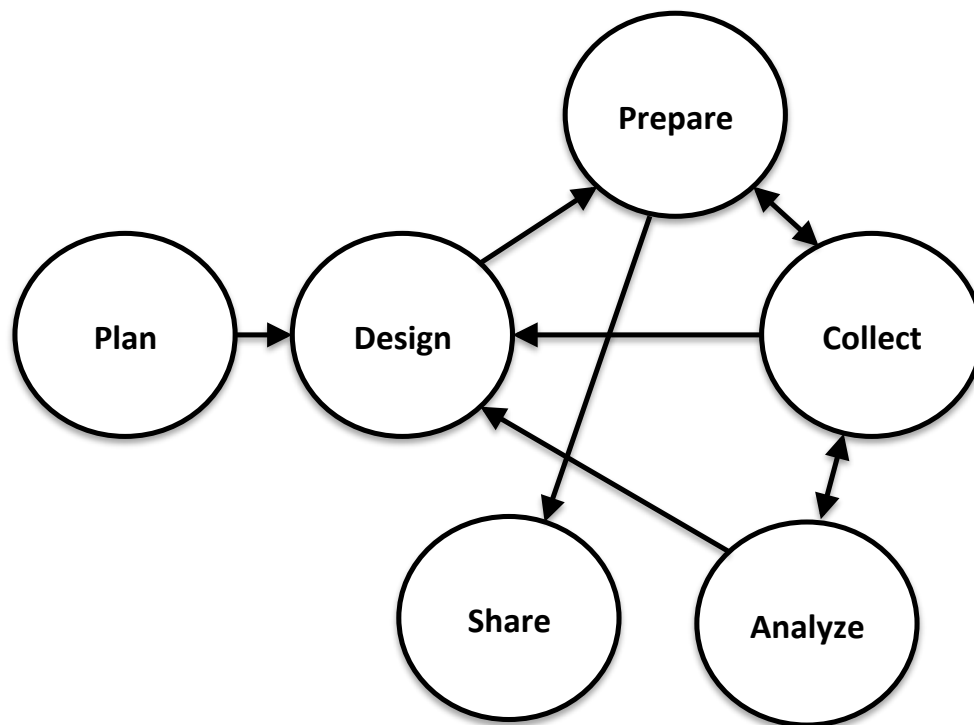


Figure 6: Case Study Overview (as adapted from Yin [2009])

The reason for this is that the process is not comprised of distinct, lateral stages. For example, although analysis can be thought of as its own unique step in the process, “the pathways to forming ideas to pursue, phenomena to capture, theories to test begins right at the start of a research study and ends while writing up the results. It is an inherent and ongoing part of qualitative research” (Spencer, Ritchie, & Connor, 2003, p. 199).

In this chapter, I describe each stage in my research process by leveraging Yin's (2009) model as a roadmap. I start by discussing my overarching plan in which I justify the qualitative case study method for my work. I then address the research design which involves being mindful of both logical and logistical concerns. Next, I talk about preparations that were necessary to conduct the investigation. After preparation, I go into detail about my data collection strategy, and then my data analysis techniques. Concerns about validity and reliability are then addressed, followed by a brief discussion about how the case study literature has impacted the manner in which I report my findings (Chapters 4 and 5). Finally, I discuss some detail about my pilot studies, including preliminary findings and lessons learned (which in turn influenced the research design for the full study). While discussing each stage in the process, I revisit Yin's iterative model of case study methodology to help guide the reader through the roadmap, and also to facilitate an understanding as to those steps which overlapped.

3.2 PLAN FOR QUALITATIVE CASE STUDY

The first consideration Yin (2009) lays out is to plan for the study, that is, to choose the method and techniques that are most suitable to the problem or phenomenon being investigated. A qualitative approach is taken in this research as this is best suited for understanding the phenomenon in question. This, of course, carries with it certain assumptions that drive both the collection of data, and the analysis of it. Therefore, I begin this chapter with a thorough justification for case study methodology by visiting the epistemological foundations of IS phenomena, and the philosophical assumptions inherent to the theories I draw from. This is, in part, an extension of literature reviewed in Chapter 2;

but moreover serves as necessary groundwork for planning consistency across my problem statement, research questions, conceptual framework, and methodology. Figure 7 highlights this stage in the process to emphasize that it occurred first.

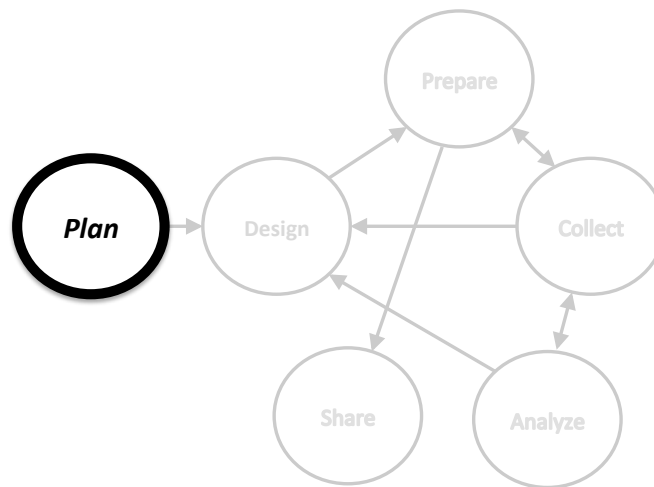


Figure 7: Case Study Planning

Qualitative case studies adopt an interpretivist perspective, that is, an assumption that reality is what human beings make of it (Merriam, 2009). As I am interested in the experiences of students, this is best known and represented through coming to understand and reporting on *their* reality. Indeed, Merriam (2009) states that qualitative research explores how people interpret their world; as well as how they perceive reality, and what particular meaning they attribute and attach to their experiences.

Because my work is rooted within the tenants of HCI as a sub-discipline, it is incumbent upon me to address the epistemological foundations inherent in its parent discipline, MIS, to ensure the appropriateness of qualitative methodology within this domain. Additionally, it is necessary to address the philosophical assumptions inherent in my conceptual framework in order to elucidate their compatibility with interpretivist research.

3.2.1 EPISTEMOLOGICAL FOUNDATIONS OF IS PHENOMENA

Discussing the philosophical base of IS, Avgerou (2000) states that in its early days, the field adopted a positivistic epistemological stance. This methodological orientation was likely a product of the discipline's roots in computer science. It emerged out of the applied computer science field of the 1960s, which aimed to systematize data-processing applications for organizations (Avgerou, 2000). As the focus was originally on computing and technology, the major outlets for scholarly work (such as MISQ and ICIS, and even doctoral research) generally published research that took positivist stances. As Avgerou (2000) notes, laboratory experiments, quantitative modeling, and empirical surveys were deemed as the most truth-worthy methods of investigation in IS. Yet, certainly not all IS scholars maintained this epistemological dogma.

Kaplan and Duchon (1988) caution that the research designs commonly employed by positivist-oriented methods "can remove enough features from the subject of study that only obvious results are possible" as these techniques are known for eliminating "the effects of context in order to produce generalizable, reproducible results" (p. 572). Thus, such studies tend to neglect social interactions and negotiations which might be contributing to the phenomenon of interest (Lyytinen, 1987). Kaplan and Maxwell (1994) stress that quantitative methods are best suited toward investigating phenomena that are unchanging over time and when IT artifacts (or features thereof), users, organizations, and information needs can be treated objectively as independent and discrete variables or entities.

Over 25 years ago, Hirschheim (1985) made it clear that IS had distinguished itself from the computer sciences, explaining that “information systems—because they are largely human or social in nature—share all the difficulties associated with the social sciences” (p. 11). As early as the late 1980’s, Kaplan and Duchon (1988) noted that there was a growing interest in social information systems. With an increasing shift of interest from largely technology-centric to more social and behavioral issues (Avgerou, 2000), the field has had to methodologically account for many more unidentifiable, and hence, uncontrollable variables in research (B. Kaplan & Duchon, 1988). While quantitative research may be useful in demonstrating a difference between variables, it is lacking in the ability “to explain the reasons for the significant differences observed” (C. Gunawardena et al., 2000, p. 1680).

Mingers (2001) stated that the IS field already draws upon disciplines that include numerous research traditions, such as psychology, sociology, economics, linguistics, semiotics, and mathematics. Hence, researchers should be aware that multiple paradigms exist, and thus multiple methodological approaches may be appropriate for the investigation of phenomena. Similarly, Robey (1996) argues that epistemological diversity within IS is more of a strength than a weakness because it allows researchers to draw upon a large body of knowledge traditions from which to base theory and research. This is especially important for IS as its scholars deal with complex, real-world topics.

As both positivist and interpretivist epistemologies are espoused by IS scholars, quantitative, qualitative, or even mixed method are all viable approaches to choose from. It is only sensible then that researchers within IS (and consequently any sub-disciplines) choose their method based on the nature of the problem that they are investigating, and the

theoretical framework(s) upon which their inquiry is based. By this reasoning, it becomes clear that describing the philosophical assumptions that are built into the theoretical fabric of my study is required to substantiate the appropriateness of my research design before discussing the design itself.

3.2.2 EPISTEMOLOGICAL ORIENTATION OF STUDY

3.2.2.1 Philosophical Assumptions of Adaptive Structuration Theory

As first explained in Chapter 1, the research in this document is partially informed by Adaptive Structuration Theory (AST) (DeSanctis & Poole, 1994), specifically, the extension endorsed by Markus and Silver (2008). At the heart of AST is the fundamental belief in the duality of technology (Orlikowski, 1992), that is, the hypothesis that a connection exists between socially embedded structures and IT effects (Markus & Silver, 2008). However, this connection does not necessarily take the form of a technological deterministic nor a social-construction of technology perspective.

According to Dutta (2008), “earlier conceptualizations viewed technology as having sufficient deterministic influence on how organizations and work practices would be shaped by it and consequently the society” (p. 56). Marx and Smith (1994) address why this view is so attractive. They maintain that seemingly causal relationships are almost unavoidable when describing the impact of inventions on society. They provide a few examples to show how easily assumptions slip into mainstream beliefs:

(Technological determinism) is typified by sentences in which "technology," or a surrogate like "the machine," is made the subject of an active predicate: "The automobile created suburbia." "The atomic bomb divested Congress of its power to declare war." "The mechanical cotton-picker set off the migration of southern black farm workers to northern cities." "The robots put

the riveters out of work." "The Pill produced a sexual revolution." In each case, a complex event is made to seem the inescapable yet strikingly plausible result of a technological innovation. Many of these statements carry the further implication that the social consequences of our technical ingenuity are far-reaching, cumulative, mutually reinforcing, and irreversible (p. xi)

Technological determinism is usually linked to positivistic approaches to the study of IT artifacts (Markus & Silver, 2008). The opposing perspective, the social-construction of technology, was widely brought to light by the seminal article written by Pinch and Bijker (1984). This alternate perspective rejects the implication that social impacts are directly stimulated by the properties of the innovative technologies which are introduced to the masses. Rather, theorists who adopt a social-construction of technology view see that technology development and use is a product of human agency (Dutta, 2008; Orlikowski & Barley, 2001). Thus, the outcomes relating to the introduction of technology are argued to be attributed to how individuals consciously and actively choose to appropriate them

As AST has emerged around the belief in the duality of technology (Orlikowski, 1992), one can say this represents either a third school of thought about the dynamics of technology and society, or that it is a reasonable compromise between the extreme ends of two opposing beliefs. In fact, the original authors of AST (in a paper published 10 years after their original work) were careful to argue that we not prepared to entirely abandon causal, deterministic logic as this promotes both reflection and anticipation in the IS field (Poole & DeSanctis, 2004). Rather, they assert that AST can help to move the IS discipline “beyond *purely* deterministic views of technology” (p. 211).

This middle ground is perhaps most eloquently expressed by Markus and Silver (2008) in their extended conceptualization of AST. They call this the critical realist view. The

following (long) direct quotation of their description of this view is provided here to comprehensively relate this perspective:

A distinct third view of causality—the critical realist view—eschews the view of causality as observed empirical regularities. In this view, objects (including people, material objects, and social phenomena such as institutions) and relations among objects (for instance, friendship or master-slave relations) are viewed as having causal potential, but whether or not this potential is realized in actuality may depend on many other conditions, such as the behavior of other objects. Further, the realization of causal potential may not always be empirically observable. Thus, in critical realist ontology, causality does not depend on the researcher’s observation of empirical regularities, or indeed on the researcher’s beliefs or social constructions, although there are inevitable limits on human knowledge about causation. Because critical realism emphasizes explanation rather than prediction, this approach consists mainly in asking what about objects and conditions could have led to the outcomes empirically observed. This type of reasoning could be very useful in teasing out what role (if any) IT plays in observed IT uses and consequences. While seeking to identify the necessary conditions for observed outcomes, the critical realist pursues hermeneutic interpretation of actors’ meanings and intentions and seeks to contribute to human self-awareness and political freedom, like other critical theorists” (p. 613).

It is important to note that the use of the word “critical” can have very specific connotations when discussing research methods. However, Dobson (2001) is quick to point out that the critical realist view in IS, by the very nature of the term, is misleading in that it is not aligned with Habermas’ critical theory. Rather, the designation of “critical” is meant to contrast against poorly articulated approaches, or as Tsoukas (1992) explains, this designation suggests a “critical attitude, self-reflection, awareness of hidden presuppositions, and disclosure of various perspectives” (p. 201).

Mingers (2004) affirms that critical realist approaches can be either qualitative or quantitative, but the key is that *description* of phenomena is not sufficient for a critical realist. What is essential within this perspective is to *explicate* how things are what they are, and to understand why. This is tightly connected to the recursive nature of activity and society in that the structures in society permit social activity, and through activities these social structures are reproduced or modified. Thus, the structures that allow for activities are reinforced and given meaning through those activities (Mingers, 2004). This is congruent with the duality of technology view espoused by Orlikowski (1992) in that technology is “both structural and socially constructed” (p. 403).

Mingers (2004) contends that social sciences, as opposed to natural sciences, find themselves faced with critical realist perspectives because natural laws are generally universal, while social phenomena are localized within time and space. “Social systems are inherently interactive and open,” he writes; and while these pertain to natural systems, these can “be artificially closed or controlled in the laboratory” (p. 96). Because social systems are considerably more difficult to control in a laboratory, the effects predicted by theories may or may not be detectable depending on context, time, or a variety of other factors. The critical realist view does not, however, eschew theory, but rather “focuses attention on a theory’s explanatory rather than predictive power” (Mingers, 2004, p. 96).

3.2.2.2 Philosophical Assumptions of The Community of Inquiry Framework

The Community of Inquiry (CoI) framework was established under the collaborative (or social) constructivist philosophy of learning. Hung (2001) explains that within this view, the process of learning is construed as active fabrication of knowledge (and henceforth

reality) as opposed to passive acquisition of knowledge. Additionally, there is a heavy emphasis on interaction with other people as crucial to this process. He elaborates that language also plays a key role, as an individual's view of reality is shaped by the way language is used. Thus, a discourse community tends to understand the world in a similar light, with similar beliefs and anticipations about reality. Accordingly, we can infer that researchers with a constructivist perspective needs to become fluent in the norms and practices of a given learning community in order to truly understand the experiences of students within it.

Seixas (1993) traces the idea of a classroom as a community of inquiry back to Vygotsky (1978) and his constructivist psychology. The assertion here is that learning happens within the context of *shared* culture, which fundamentally makes it a communal activity. This is similar to the positions espoused by Dewey in his writings, which the original authors of the CoI framework (D. R. Garrison et al., 2000) ground much of their theoretical presuppositions in. While many scholars categorize Dewey as a pragmatist, J. Garrison (1995) argues that Dewey's version of pragmatism is actually one and the same with social constructivism. As part of his basis for this claim he articulates "meaning for Dewey was a social construction...Dewey's view of language as communication in cooperative and coordinated partnership in the construction of all meaning is at the core of his entire philosophy" (p. 733).

Similarly, Schön (1992) explains that Dewey considered the process of scholarly inquiry to be based on human transactions, open-endedness, and the social environment. However, Schön explicitly states that he does not believe that Dewey is a constructivist in the

traditional sense. He clarifies that Dewey is aware “that our constructed problems determine what facts we select for attention, and that our ways of constructing problems from problematic situations are subject to variation from culture to culture, person to person, time to time, and context to context. He appears, however, to hold a robust belief that ‘observed facts’ being just what they are, judgments about problems can be tested against them” (p. 123).

Despite which term scholars designate to Dewey’s worldview, what is most important in this subsection is to clarify the epistemological orientation of the CoI founders. In writing about the CoI framework, Garrison (2011) clearly notes “philosophically, this collaborative constructivist perspective is associated with the work of John Dewey. Dewey (1938) identified the principle of ‘interaction’ which unifies the subjective (personal) and objective (social) worlds in an immediate timeframe. Through this interaction, ideas are generated that illuminate the external world” (p.10).

At this point, one could raise a concern that I am conflating the philosophies of pedagogy and epistemology. After all, the CoI framework is buttressed by the underlying assumptions in Dewey’s writings about experiential learning. This is to say that the CoI framework is *about* the elements necessary for the process of deep and meaningful experience to occur within a classroom environment. Yet, this is arguably distinct from *how* we know that the CoI framework accurately represents reality. In other words, do the assumptions inherent in the framework have different implications for practice than they do for scholarly inquiry about the framework?

Although much research reports densities of indicators coded in record computer-mediated transactions, the CoI framework remains “qualitative analysis, even though frequencies are provided to help gain a quantitative sense of what is occurring. This is appropriate in exploratory research into understanding a new application such as text-based online educational experiences” (D. R. Garrison, Cleveland-Innes, Koole, & Kappelman, 2006, p. 4) .

In its earliest days, the components of the CoI framework were investigated through content analysis of computer transcripts, or what Garrison et al. (2006) refer to as transcript analysis. They explicitly state that this approach is part of the tradition of qualitative exploratory methodology. In noting the large qualitative base of research that has been conducted within the bounds of the model, Garrison (2011) advocates more quantitative research, especially to refine the indicators. However, he advises that “qualitative approaches can provide insights and explanations not possible with objective instruments” (p. 129). In particular, qualitative approaches can be extremely useful to reveal student perspectives about the dimensions of the CoI model (Díaz et al., 2010; D. R. Garrison, 2011).

3.2.3 CONCEPTUAL JUSTIFICATION FOR CASE STUDY METHODOLOGY

Garrison (2011) posits that social media use in education may have a substantial impact on higher education (particularly regarding possibilities for facilitating social presence). He expresses that the specific applications of social media, and their consequent potential educational value is in need of “considerable study”. While he advises educators to be cautious in their consideration of using these ICTs in classes, he also suggests that the CoI

framework can allow researchers the conceptual tools in which to sort through the connections between social media and social presence as a mediator of cognitive and teaching presence (2010).

The CoI model provides a credible theoretical framework that helps to orient the researcher in regard to the phenomenon of educational experience (D. R. Garrison, 2011; D. R. Garrison et al., 2006). This sense of orientation permeates through my research design. In particular the constructs of social presence, cognitive presence, and teaching presence guide the process of data collection, data analysis, and reporting on the findings. In other words, the CoI model largely helps to center the *human* element of this HCI inquiry. Meanwhile, AST provides additional necessary orientation in regard to the *computer* element.

Embedded within AST is the expectation (assumption) that IT effects are linked to social structures. This is manifested in that technical objects have functional affordances for, and provide symbolic expressions to a specified user or group (Markus & Silver, 2008). The technical objects of this study are social media and/or their specific properties (as defined in Chapter 1 and elaborated on in Chapter 2). The specified users are members of distance and blended-learning higher-education courses.

The specific properties (that is, features) of a technical object that are relevant in a given study are those that provide functional affordances for the defined user base. Thus, the features which are pertinent to the researcher is determined by the goals of those who comprise the user base (Markus & Silver, 2008). With the phenomenon of interest here being the educational experiences of students, it is my responsibility to deduce which

technical objects students find to be relevant for their educational experiences by collecting and analyzing the relevant data about functional affordances.

As described in Section 2.7.3., the notion of symbolic expressions considers the values or meaning conveyed by a given technical object. “In other words, while we assume that users engage in processes of interpretation and social construction with respect to systems, we also assume that something in IT artifacts can contribute to (but not determine) users’ impressions of systems” (Markus & Silver, 2008, p. 622). This is “a relational concept bridging IT artifacts and how users may interpret them... (and) may relate to the artifact as a whole or to any of its component technical objects” (Markus & Silver, 2008, p. 623). In regard to this study, the symbolic expressions, unlike functional affordances, are pre-determined. Specifically, much like Grange and Benbasat (2010) identified utilitarian symbolic expressions, my research design works to delineate technical objects which carry the values of sociality, intelligence, and instruction (which correspond to the extant CoI concepts of social presence, cognitive presence, and teaching presence).

Markus and Silver (2008) note that functional affordances and symbolic expressions are tightly interwoven. Yet, they observe that a technical object “may have many different symbolic expressions for a specified user group, just as it may have many functional affordances” (p. 623-624). Accordingly, because the symbolic expressions of this study are already established by the CoI framework, such will help to guide the data collection and analysis of this study. However, the technical objects and functional affordances are the points which are unknown, and open for investigation.

Understanding the functional affordances of social media which communicate CoI-related symbolic expressions for distance and blended-learning class members is unexplored territory. Critical realism, which is the underlying philosophical assumption of AST, is about getting “beneath the surface to understand and explain why things are as they are” (Mingers, 2004, p. 100). Qualitative methodology is advantageous when research needs to account for how individuals conceptualize, construe, and understand the world around them (Kaplan & Duchon, 1988). This can inform IS research because “the strengths of qualitative methods lie in their usefulness of understanding the meaning and context of the phenomenon studied, and the particular events and processes that make up the phenomenon over time, in real life natural settings” (Kaplan & Maxwell, 1994, p. 34).

Yin (2009) defines the case study as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Kindle Location 633). The phenomenon of educational experience in this dissertation is tightly linked to the context of higher-education courses and their appropriation of social media over the period of an entire semester. Considering the inability to separate context and phenomena, and that this is inherently a contemporary issue being investigated, the case study method is opportune for my study. This is evident in the methodological design of my research described next.

3.3 CASE STUDY DESIGN

The design of case study research is where the iterative nature of the process begins to become apparent. According to Yin (2009), the research design is much like a work plan, considering the logical and logistical overview. One needs to consider: research questions,

propositions (if any), the unit of analysis, how data and the phenomenon of interest are linked, and how the findings will be interpreted. Also, a research design needs to be strategically conceived in order to minimize threats to validity and reliability. However, the actual tactics for reducing these threats are employed throughout different phases in the process. To make these tactics clear to the reader, they will be described near the end of this chapter. Figure 8 highlights the design stage, as well as the other stages that concurrently occur or influence the design stage.

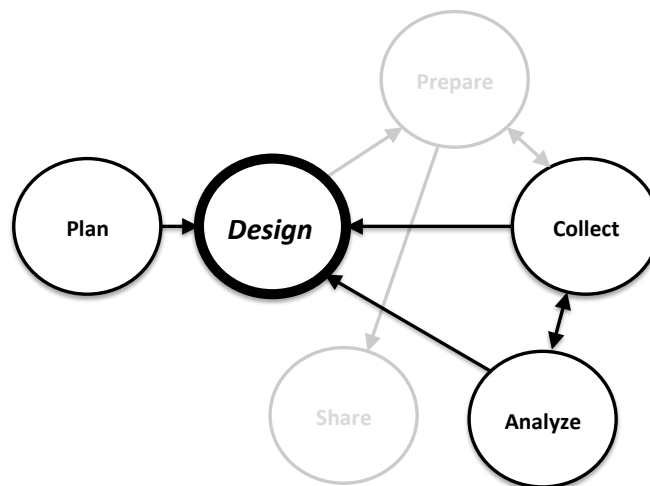


Figure 8: Case Study Design

3.3.1 RESEARCH QUESTION DEVELOPMENT

The first element of case study design espoused by Yin (2009) is establishing research questions to narrow down what about the phenomenon of interest identified in the plan will be studied, and how. He notes that questions can emerge from reading scholarly literature, as well as other studies. My interest in the topic was derived through personal interest in social media and education, as well as reviewing literature and studies about

technology use in classrooms. However, the questions themselves really came about following a pre-pilot designed to help me better narrow my scope.

The pre-pilot took place in Fall 2011 consisted solely of interviews with students from a single introductory The Master of Science in Library and Information Science (MSLIS) class. This was originally designed as a full pilot, but following data collection and analysis, revealed the need for a more in-depth pilot. It was, however, through this pilot that the research questions became clear and took substance. I knew from my research plan that this would be a qualitative case study, and was therefore careful to ask “how” questions. Yin (2009) explains that “how” and “why” questions are best addressed through case studies as these types of inquiries “deal with operational links needing to be traced over time, rather than mere frequencies or incidence” (Kindle Locations 454-455).

A common misconception of the case study, according to Yin (2009), is that it is, largely, an exploratory research method. He maintains that any research method can be used to provide exploratory, descriptive, and/or explanatory insight into a phenomenon. My study aims at all three of these to varying degrees. Based on the positioning of my investigation with “how” questions, it should be readily evident that this is, first and foremost, an explanatory study. The overarching aim here is to determine how the educational experiences of students are affected when social media is incorporated into distance-based and blended higher-education courses. Thus, the outcome of my research needs to focus on *explaining*, in detail, how the use and impact of social media affects educational experience. This, of course, cannot be done clearly without also *describing* use and impact through rich evidentiary examples. The theoretical frameworks that help to orient this research provide

lenses through which to provide these explanations and descriptions. However, studying social media within the CoI framework is a new endeavor. Hence, the existing dimensions of the framework may not sufficiently account for what is revealed in my data.

The plan for my study served to help position the design considerations of the study. Understanding, in advance, that my findings would have explanatory, descriptive, and exploratory elements, serves to dictate which types of data to collect, and the particular tactics for analysis.

3.3.2 CONCEPTUAL MODEL

Closely connected to these research questions is the conceptual model for the study which demonstrates its explanatory, descriptive, and exploratory nature; and further helps to establish the pertinence of qualitative data collection and analysis techniques. Drawing on Figure 5 in Section 2.7.3 that illustrated AST, Figure 9 presents a guiding model for the study.

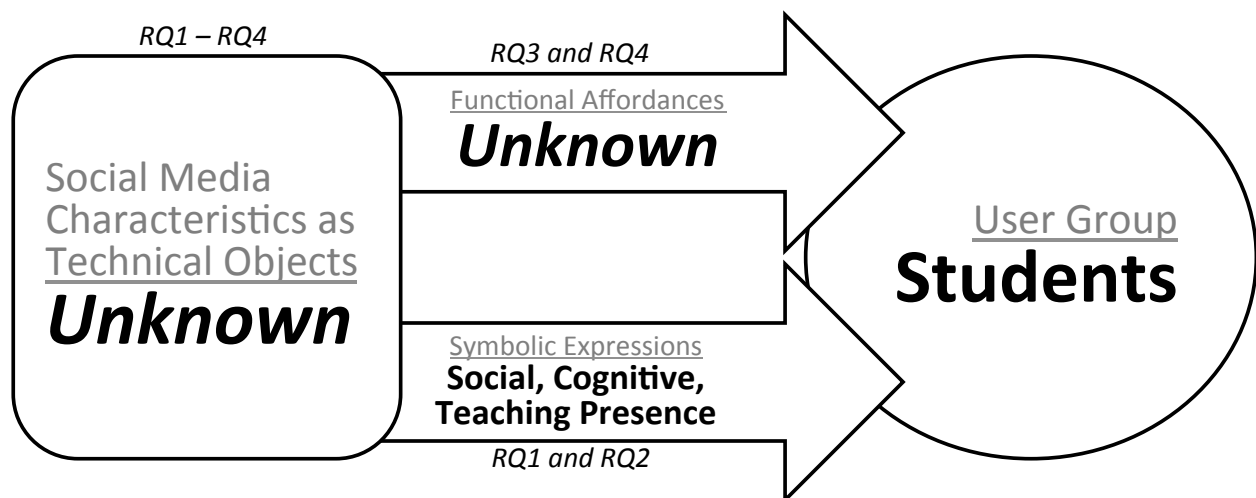


Figure 9: Conceptual Model Based on Extended Adaptive Structuration Theory

As noted earlier in this chapter, the symbolic expressions are derived from the CoI framework, while the user group of interest is students. RQ1 and RQ2, which address social media's impact in blended and distance courses will be answered in respect to the value that social media has for students in respect to their ability to convey social, cognitive, and teaching presence. Meanwhile, RQ3 and RQ4 address specific social media characteristics and their functional affordances. As these are not rooted within an extant theoretical framework, they are labeled unknown in the model above. Ultimately, however, answering all four research questions will provide insight into how social media characteristics provide functional affordances to, and symbolic expressions for students. This model will be referred to later in this chapter (Sections 3.5 and 3.6) to explicate the relevance of particular techniques for data collection and analysis.

3.3.3 DELINEATING THE CASE, UNITS OF OBSERVATION, AND UNIT OF ANALYSIS

The CoI framework reflects social, teaching, and cognitive presence at the community level. Therefore, in addressing questions RQ1 and RQ2, a community-based level of data collection and analysis is appropriate. Yet, an individual-level approach is necessary for addressing RQ3 and RQ4. While the rationale behind these levels of analysis, and the connections between them will be explicated at length in Sections 3.5 and 3.6, it is important to first address how these two categories of research questions have factored into my study design. Describing the role of courses, and defining what is a case, units of observation, and unit of analysis will make this clear.

3.3.3.1 The Role of Courses

Using the MSLIS/MSLISSM programs as a context for my cases was reinforced in an interview I conducted with Dr. Antonio Darnell (pseudonym) after my pre-pilot data collection and analysis. He reported curricular and management objectives for having his students use social media in this introductory course. Additionally, Dr. Darnell maintained that the community-like nature of social media provided an emulation of what library students would experience in practice. That is, the interactions among students (and related actors) as a community using social media is similar to what students would face in the library field as professionals interacting with a community.

In light of his encouragement of first semester students to practice social media use as students and future practitioners, and my knowledge as an iSchool member that several MSLIS/MSLISSM faculty use it in their classes too, it was evident that courses in these programs were an ideal context in which to investigate my phenomenon of interest.

That is to say, courses were chosen in which students were encouraged (or required) to use social media. As my research questions dictated both community-level and individual-level data collection and analysis, the course as an entity became a key criterion for case selection.

3.3.3.2 Defining the Case and Unit of Analysis

A key characteristic of case studies is that they are bounded by specific attributes in space and time (Creswell, 1998). For example, they may be bound to people, as in one individual, role, small group, organization, community, or nation; or they may be bound by a particular decision, policy, process, setting, incident, or event (Bogdan & Biklen, 1982; Punch, 2005).

The bounding of a case study is necessary as it prevents the researcher from having a potentially infinite scope to her or his investigation (Merriam, 2009).

Yin (2009) recommends deciding upon the unit of analysis for the study as a tactic to narrow its scope. He seems to conflate the idea of the unit of analysis with what the “case,” going so far as to first say that they share the same definition. From a careful reading of his text, however, it appears that he is really defining the unit of analysis as the focus on exactly what is being investigated, and thus, defining the boundaries of the case. Merriam (2009) reflects this sentiment, noting that the defining characteristic of a case study is the unit of analysis. To illustrate this, she uses the example of a study about how older adults learn to use computers. She makes it clear that in such a study:

The unit of analysis would be older adult learners and their experiences, and an infinite number of older adult learners and their experiences using computers could be selected for study. For it to be a case study, one particular program, or one particular classroom of learners (a bounded system), or one particular older learner selected on the basis of typicality, uniqueness, success, and so forth, would be the unit of analysis (Merriam 2009, p. 41).

Merriam’s definition of unit of analysis, much like Yin’s, is the defining characteristic of the study’s overarching goals. So in this example, the case could be said to be one particular older adult learner, while the unit of analysis is older adult learners. Note the emphasis on the plural (older adult learners) regarding the unit of analysis. In this way, the unit of analysis is the defining criteria of the case, while the case is that which is being reported on. My unit of analysis is graduate students taking classes in the MSLIS program, while each

student is deemed a case (that which is being reported on). This unit of analysis is reported on at a community level (RQs 1-4) and an individual level (RQs 3 and 4).

3.3.3.3 Units of Observation

Another important distinction to be made is that between the unit of analysis and unit of observation. Neuendorf (2002) distinguishes between units of analysis and observation in that the former is “the element on which data are analyzed and for which findings are reported” (p. 13) while the latter is “the element on which each variable is measured” (p. 13). Due to the community-level and individual-level nature of the RQs, units of observation had to be chosen that would capture community-wide and individual-level data. While detailed at length in Section 3.5, the ideal units of observation for this study were interviews, digital artifacts, and observations. These units of observation, of course, were consistent with the data analyses that would be conducted (addressed in Section 3.6).

3.4 PREPARATION

The third step that Yin (2009) describes in the process of conducting case study research is the prepare for the study, as illustrated by Figure 10. Preparation consists of honing one’s case study investigation skills, training for the specific study, developing a research protocol, and conducting a pilot study (Yin, 2009). This section describes how I have addressed each of these concerns, as well as my case selection.

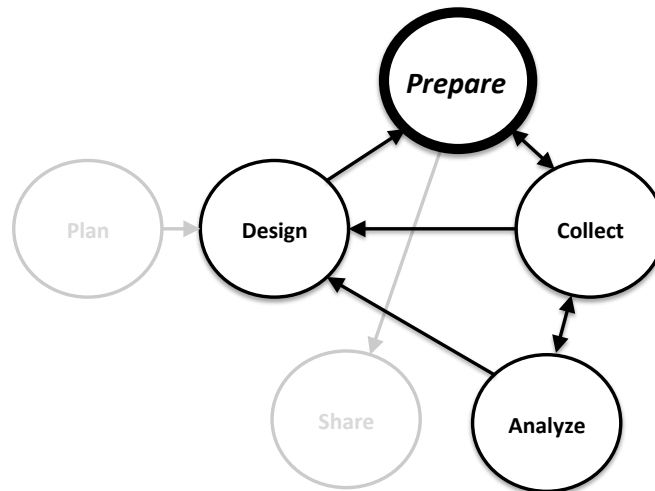


Figure 10: Case Study Preparation

3.4.1 CASE STUDY SKILLS

Regarding case study skills, Yin (2009) explains that a researcher who conducts a qualitative case study invests a great deal of emotion, ego, and intellect; much more so, he argues, than with other methodologies (most notably experiments or surveys). The reason for this is that the process of data collection is not routinized, and needs to be undertaken personally by the researcher (as opposed to research assistants). There are also no clear tools for distinguishing who is going to be a good qualitative researcher in advance, but Yin does point to commonly cited criteria that help with conducting strong case study investigations. Accordingly this includes (as adapted from Yin, 2009).

- The ability to ask good questions and interpret the responses
- The ability to be a good “listener” and “not be trapped by her or his own ideologies or preconceptions” (Yin, 2009, Kindle Location 1563)

- The ability to be flexible and adaptive so unexpected situations are perceived opportunities and not threats to the study
- A firm grasp of the issues investigated, even during exploratory context.
- The ability to be unbiased by preconceived notions, such as those related to theory utilized for a study

As I conducted both a pre-pilot and a full pilot, my preparedness to ask “good” questions and to also be a “good” listener emerged. I also have past experience interviewing for qualitative research studies (such as my Master’s thesis, and a study conducted in a previous doctoral-level course). These experiences have prepared me to be flexible and adaptive as I have previously run into unexpected situations and been able to deal with them accordingly while maintaining the integrity of my study. I have made a conscious attempt to not be leading in my interviews, that is, to allow informants to tell me about their perspective so as not to be influenced by my preconceptions.

In regard to my understanding of the issues being investigated, I have a firm grasp of the direct and surrounding issues of the phenomenon I am investigating (as evidenced by the literature review in Chapter 2, as well as the pre-pilot and full pilots elaborated on later in this chapter). However, while this study is focused through theoretical lenses, I am mindful that unrelated and unexpected findings or issues may arise. In fact, themes did emerge in my pre-pilot study (discussed below) which were not accounted for by the theoretical frameworks that facilitated my pre-pilot data collection. These were further explored in the pilot, and eventually the full study. Thus, I demonstrated throughout the process an ability

to remain unbiased by my theoretical lenses, and allow unanticipated issues to emerge and be appropriately accounted for.

3.4.2 TRAINING AND RESEARCH PROTOCOL

Training (such as a seminar) on case study research is advised by Yin (2009) prior to conducting a real-world investigation. While I have not taken a seminar specifically on case study research, I have taken qualitative methods courses and participated as a researcher on qualitative research studies. In fact, I previously helped to write two mixed-methods case study reports that investigated social media use by middle and high school students (Reynolds, Scialdone, & Caperton, 2010a, 2010b).

Yin (2009) explains that another necessary task, prior to conducting an investigation, is to obtain approval to conduct research using human subjects. This may require the researcher to undergo any institutional-based training, and to develop a protocol for acceptance by the requisite institutional review board (IRB). The research protocol lays out the specific guidelines and plans for a study, and includes details about how data are going to be collected and analyzed, and how subjects will be recruited (and possibly compensated) for the study.

Before I contacted any potential informants or collected any data, I completed the necessary paper work for IRB. As my study was set within an standard educational context, and involved normal educational practices, I applied for an IRB exemption. My rationale was written as follows:

As part of this research, multiple case studies of classes will be conducted. Consent will be obtained first from the instructor of a given class. The instructor will be asked to

make his or her class aware of the researcher's "presence" in collecting data from the class, that is, that the researcher will be gathering data about the students through observational channels available online, such as that outlined above. A key element of this awareness is that the instructor and/or myself will make it clear to the students that they do not have to be unwilling participants. That is, any student who is uncomfortable with the research can simply request to not have his or her data collected, or to have any collected data expunged, without risk of any penalty. Any students who are asked to participate in one-on-one interviews will complete a consent form. Again, students will be made aware that they do not have to participate in interviews, and that there is no penalty for not participating. That they can drop out at any time without question, even after being interviewed, will also be explained.

I also submitted copies of my instructor and student consent forms, as well as an interview protocol. The IRB granted the exemption with minor revision to the wording of my consent forms. Following the collection of my pre-pilot study, I made changes to the scope of my study (expanding from purely distance-based classes to both distance and blended learning contexts), and to my interview protocol. Consequently, I submitted paperwork for a revised exemption, and it was granted as well. Blank copies of the consent forms are included in the appendices of this document.

3.4.3 PRE-PILOT STUDY

According to Teijlingen and Hundley (2001), “the term ‘pilot studies’ refers to mini versions of a full-scale study (also called ‘feasibility’ studies), as well as the specific pre-testing of a particular research instrument such as a questionnaire or interview schedule” (p. 1). I

originally conducted an initial small-scale study as a pilot to test and refine my data collection tools, which led me to recognize the need to conduct a more in-depth pilot to even further refine my plans for the full study preparation, data collection, and data analysis. This initial study, I refer to as my pre-pilot to distinguish it methodologically and chronologically from my full pilot. The pre-pilot took place during Fall 2011, while the full pilot occurred during Summer 2012.

As a doctoral candidate in the institution where I am conducting my research, I had some idea as to which professors used social media in their classes. I contacted Dr. Darnell, who I knew was an avid user of certain social media. I approached him to inquire if he used any in his classes, and he affirmed that his class Introduction to Library and Information Professions (ILIP) was actively blogging and using Twitter. He invited me to use this class as the case for my pre-pilot, explaining that it was a required introductory course for all new students. Although my original intent was to study only online classes, this blended class was one that I perceived could help me to refine my research questions, design, and scope.

I attended his class twice over the course of a month to make a personal pitch to the students about my research. I received a total of nine students who expressed interest in being interviewed, eight of whom ended up participating. These interviews focused on general inquiries about students' backgrounds and social media use, as well as more specific questions that targeted facets of the CoI framework. In addition to collecting interview data, I also collected Twitter data that was publicly available online. The hashtag "#ILIP" (changed from original to protect privacy) was used by members of the class (and

others participating in class-related discussions) to allow aggregation of tweets related to the class. This allowed for ongoing discussions or class-related announcements.

For analysis, instances of the three dimensions of the CoI framework were coded in the data based on specific indicators from the literature of social presence, cognitive presence, and teaching presence. Next, open (inductive) coding was performed to capturing use and impact dimensions of social media, as well as which design features contributed to the corresponding use and impact. Additional data were coded in regard to positive and negative attitudes, hardware use, and other miscellaneous themes that emerged as potentially interesting and relevant.

Through analyzing the pre-pilot data, I recognized that there was much richness to be gleaned from both online and blended-learning formats. Additionally, I recognized that I needed a clearer conceptualization of “technology features” to fully understand the use and impact of social media on communities of inquiry. This lead me back to the literature, and ultimately to a redesign (and more planning) for a fuller pilot study. It was at this point that AST was introduced into my conceptual framework. The pilot study was conducted during Summer 2012. As the preliminary findings from the pilot help to inform the full study, it is discussed toward the end of this chapter (section 3.8).

3.4.4 CASE SELECTION

To determine which data need to be collected for the phenomenon at hand, one needs first to select the appropriate case(s) (Yin, 2009). Case studies are often used in education as a means to evaluate a program, a course, or some aspect thereof (Lancy, 1993; Merriam, 2009). A case study may consist of one, or a small number of cases that are studied in depth

(Creswell, 1998; Punch, 2005), which is of course, driven by the questions posed and the problem the study addresses.

The main study reported on in this dissertation is comprised of a total of 9 case studies, situated across 2 contexts of relevance: distance-based learning environments and blended learning environments. I noted above that to best understand students' educational experiences, I must necessarily provide explanation from the perspective of students as they themselves are best-suited to provide key insight for understanding such a highly contextualized phenomenon. Therefore, I decided to study multiple cases within blended and distance-based learning environments. Details of the courses and selection process are described next.

3.4.4.1 Blended Course Case Selection

All of the cases that fit within the blended course context came from a single blended course, Reference and Information Literary Services (RILS) (the course and section numbers have been withheld for confidentiality purposes). This is a core, required course for all students in both Library and Information Science (LIS) Master degree programs at the university.

I chose this course as one of the contexts for my case studies because I am well acquainted with the instructor, Ms. Ursula Jackman's (pseudonym) work and her enthusiasm for social media. I knew that she typically allowed, if not, encouraged students to leverage social media for course activities. I spoke with her at the beginning of the semester and confirmed that this would make an appropriate class from which to collect data. I described my study

at length to her, and gained her consent to make observations in her class, and to request interviews from her students.

About 2/3 of the way into the semester, Ms. Jackman invited me to speak in front of her students at the beginning of class. I explained the purpose of my study to them, that there was a \$25 incentive for any and all interviews conducted, and then I passed a sign-up sheet around the room for volunteers. Out of a class of about 30 students, 8 signed their names.

I spent a whole class period making observations on the participatory nature of students in the class as to select what I thought would be a representative but wide range of cases. Two of the cases selected had laptops in class and appeared to be participating via social media during class activities. Two of the cases selected did not. The final case I selected had not signed up originally, but she spoke with me after class and related to me that she would love to participate, but she did not have a very high opinion of social media. I asked if she would, then, participate because it was important to select cases that spanned various perspectives. She agreed.

Profiles of the cases selected for the blended context are provided in Chapter 4, providing rich detail about those who participated.

3.4.4.2 Distance Course Case Selection

The four distance-based case studies that were considered for this research came from two distinct online classes: Social Networking in Libraries (SNL), a class that took place during the Summer 2012 term; and Introduction to Information Technologies in Educational Organizations (IITEO), a class that took place during the Fall 2012 term. Some of the data

collected and analyzed for the SNL cases below was done so as part of my pilot study.

However, I expanded on them for the full study due to a few reasons.

First, few distance courses that integrated social media were offered during the semester I collected the majority of my data. I had made arrangements with the instructor to use IITEO as a context about a month before the class began. However, only five students were in the course, and only two agreed to participate as cases. Active participation with my research had also been challenging with SNL in my pilot study, as despite a class size of about 15 students, only 3 showed interest in being cases.

Fortunately, I had sought to use IITEO as a context because of course similarities to SNL.

The syllabus for SNL describes the overall emphasis of the course as being on “how practical understanding and use of Social Media/Social Networks tie into larger concepts of librarianship including service development, outreach, access and marketing. The course will show practical skills tied to deeper concepts of librarianship, participation, and conversation”. A stated outcome of SNL was that students would be able to “demonstrate proficiency with social network technologies. The IITEO course, meanwhile, addresses “issues related to information technologies used in educational settings,” to help students “gain experience with a variety of technology tools relevant to educational contexts.”

Accordingly, “emphasis will be balanced between knowledge about information technologies and the use of information technologies in a range of settings.”

The data I collected (and concurrently analyzed) from the IITEO course did not reveal any major new or different insights from the cases in SNL course. Additionally, the data collected for the pilot study was already rich. Therefore, I decided to expand two of the SNL

pilot studies into full studies, ultimately collecting additional data. The next section details my data collection procedures. Richly detailed profiles of the cases selected for the distance-based context are provided in Chapter 4.

3.5 DATA COLLECTION

The stage of data collection, as described by Yin (2009), is represented in Figure 11. The stages of prepare and analyze are not grayed out as to emphasize their importance in the collection stage.

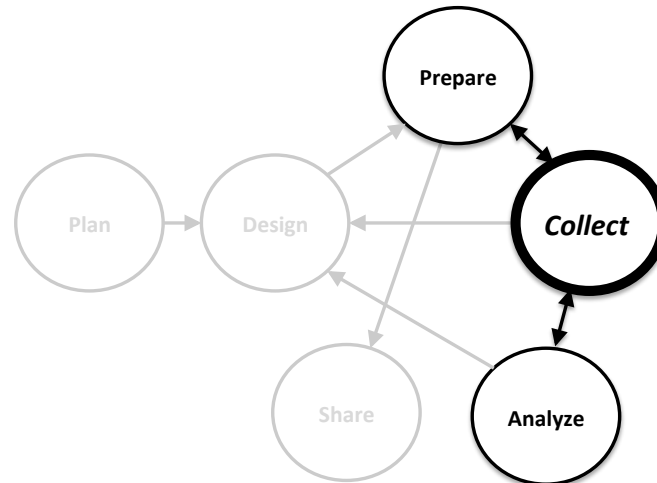


Figure 11: Case Study Data Collection

3.5.1 OVERVIEW OF DATA COLLECTION

For some qualitative investigators, almost everything is a potential source of data (Punch, 2005). They have a wider breadth of possible empirical materials than researchers who take a quantitative approach. Lancy (1993) explains that qualitative researchers, by the nature of their interpretivist epistemology, need to be open to a variety of data sources for their research because their studies are not (typically) built upon hypotheses or

propositional assumptions. Thus, they typically use multiple sources of data to investigate their phenomenon (Punch, 2005).

However, most qualitative researchers use theory as a lens through which to focus their work, as a way to situate it among other research within the field, or to help “map the topography of the specific concepts they will explore in detail” (Marshall & Rossman, 2006, p. 36). Accordingly, the intended strategy for data collection, as well as the forms of data to be collected, are likely to be determined directly from the specific purpose(s) of the investigation (Arthur & Nazroo, 2003). Merriam (2009) advises, “data are nothing more than ordinary bits and pieces of information found in the environment. They can be concrete and measurable, as in class attendance, or invisible and difficult to measure, as in feelings. Whether or not a bit of information becomes data in a research study depends solely on the interest and perspective of the investigator” (p. 85).

The more exploratory a study is, the less that it is structured up front. In a purely exploratory study, data collection is expressly open-ended from the start so that participants drive and shape the direction and formation of the study (Arthur & Nazroo, 2003). However, the overarching intent of this research is *explanation* of the phenomenon. Data collection for this case study is consequently constructed as to best understand social media use and impact from the perspective of students in terms of *their* educational experiences, and aims to report on *how* these experiences happen as they do. Theory, namely the CoI framework and AST, drive the collection of data as to best fulfill the intent of providing an explanation. This is congruous with the goals that Merriam (2009) describes for qualitative research as its overall purpose is “to achieve an understanding of how people

make sense out of their lives, delineate the process (rather than the outcome or product) of meaning-making, and describe how people interpret what they experience” (p. 14). This is known as coming to understand a phenomenon from an emic (insider’s) perspective rather than an etic (outsider’s) perspective.

There is a certain flexibility that must be had to take an emic perspective (Merriam, 2009). I was aware upfront that issues could arise that would be unexpected or unaccountable for in my existing theoretical framework. For example, I recognized the need to make some changes to the design of my research following my pre-pilot study. Therefore, my expected techniques for data collection and analysis had to be revised. Similarly, I made some adjustments to my data collection techniques following the pilot study.

Exactly how much data to collect on a given phenomenon is also always an ill-defined issue that is faced by qualitative researchers. Merriam advises that the best rule of thumb for investigators is “that the data and emerging findings must feel saturated; that is, you begin to see or hear the same things over and over again, and no new information surfaces as you collect more data” (p. 219). Ragin (1994) notes that reaching this “point of saturation” is impossible to anticipate beforehand, but “in general, if the researcher learns as much as possible about the research subject, he or she will be a good judge of when this point has been reached” (p. 86).

My pilot study had begun to feel saturated after six cases. Consequently in the full study, I decided to aim for eight to ten cases. As I collected and concurrently conducted analysis on my data, it was apparent that these would be sufficient due to continued saturation. Below I describe the types of data collected, as well as why they were collected.

3.5.2 OBSERVATIONS

Observations were important for me to make in order to understand the physical context in which a blended CoI is situated. As the phenomenon of interest for my research address types of presence within computer-mediated environments, I did not make observations for the purposes of assessing presence within the physical classroom. Observations did, however, help me to contextualize some of the tweets that happened during the class period. They also allowed me to gain a sense of the face-to-face dynamics between students, and between students and the instructor.

The process of observing is systematic, consisting of making a detailed recording of the events, behaviors, and artifacts situated within a given social, public environs chosen for study (Marshall & Rossman, 2006). This is sometimes a specific location, but other times it is much more generic. For example, a specific bus may function as the social environs for a study; a given city may comprise the boundaries for another study; or one may even consider the buses within a particular city as the environs, despite that this may mean there are many different actual physical locations (Spradley, 1980).

The place within which data was collected for this study was arguably not as straightforward as the bus example. My study considered blended and distance-based online courses, forcing me to address the question of whether or not the Internet is a place. According to Hine (2000), there are two ways that one can view the Internet. First, it can be said “that it represents a place, cyberspace, where culture is formed and reformed;” or second, it can be viewed as a cultural artifact, that is “a product of culture” (p. 9). This is similar to a familiar dichotomy concerning the causal impact of ICT artifacts and culture,

which takes either a technological deterministic, or social-shaping of technology view. Above, I discussed the influence of the duality of technology view (Orlikowski, 1992) on AST. This assumes a more pragmatic, middle-ground, recursive view on the casual nature between ICTs and culture. Under this perspective, technology is something that humans create, but it also helps to give shape and structure to culture. Furthermore, individuals attach different meanings to technologies based on how they have come to be used socially.

As the duality of technology view is an assumption built into my theoretical framework, I am using this logic to make what I believe is an appropriate interpretation regarding the question of whether or not the Internet should be considered a place. I believe that what we call websites or Internet tools are socially conceived of as places (as people often talk about visiting specific websites) but that the activities performed often manifest as cultural, digital artifacts (such as text-based posts, a picture shared on a website, or a URL). Thus, there were a number of “places” that made up the social environs for my case studies. The archived activities that people perform in online spaces, as evidenced through discussion posts, shared links, multimedia content, and the like, were considered as comparable to observations; yet for the sake of clarity and distinction, I refer to these as digital artifacts (and elaborate upon these shortly).

Observations, along with interviews, are a primary source for data in qualitative research according to Merriam (2009). She writes that they are distinct from interviews in that they occur within the natural setting of the phenomenon, as opposed to a potentially designated space removed from the phenomenon. Secondly, “observational data represent a firsthand

encounter with the phenomenon of interest rather than a secondhand account of the world obtained in an interview” (p. 117).

It is important to determine, after the place for observations is decided, what exactly the researcher’s role as an observer consists of. That is, the researcher may be anything from a complete participant in activities in the social context to a complete observer, and anywhere in-between (Creswell, 1998; Marshall & Rossman, 2006; Merriam, 2009).

Merriam (2009) explains that a complete observer is either physically hidden from those being observed, or “is in a completely public setting such as an airport or library” (p. 125).

This role implies that the actors in the social environs are completely unaware of the investigator’s observances.

My observations, which occurred within the classroom space of the blended-learning course, did not allow me to be “invisible”. I didn’t participate actively in the class, but the students were aware of my presence as I had made an announcement in one class session about why I was there, and to see if some would participate in one-on-one interviews.

Furthermore, because I needed to collect digital artifacts from class members as well, it was helpful to “friend” as many students in the class as possible. Therefore, I was what Merriam calls “observer as participant”. In this role, “the researcher’s observer activities are known to the group; participation in the group is definitely secondary to the role of information gatherer” (p. 124). I was as non-intrusive and non-participatory as possible, as to maintain the naturalistic setting of the students’ educational experiences.

Spradley (1980) states that part of making good observations is to maintain explicit awareness of purpose and social situations. He explains that “if human beings actively tried

to remember and catalog all the activities, all the objects, all the information they could perceive, and if they did this all the time, they would experience what some scholars have called overload” (p. 55). Making observations, for the purposes of research, provides a contrast to this as the investigator must be mindful about what to pay detailed attention to, and what to block out (as to avoid such overload).

Merriam (2009) notes that common elements to observe consist of the physical setting (and what it is like), the participants (their roles and characteristics), activities and interactions, conversations, the researcher’s behavior (based on their level of participation in the setting), and other less obvious factors relevant to the inquiry. The extent of how much, and exactly what to observe can be focused by a number of factors, such as suggestions from informants, personal interest, research strategy, organizing domains, or theoretical lens (Merriam, 2009; Spradley, 1980).

A journal is one tactic in which to keep an account of ideas , experiences, errors, confusion, insights, problems, opportunities, etc (Spradley, 1980). This is also commonly referred to as field notes (Marshall & Rossman, 2006; Spradley, 1980). They tend to have a personal side to them, and aid in the analysis process as the researcher not only documents observations, but also reflections on the observations (Creswell, 1998; Spradley, 1980). Observations helped me to collect data about symbolic expressions in regard to the value that technical objects had for students. That is, how they were being appropriated in respect to social, cognitive, and teaching presence.

As recommended by Spradley (1980), I began with a rather wide focus of observations. I soon narrowed down to noting only that which I interpreted as pertinent to explaining and

describing my phenomenon of interest. I made observations on three class sessions of RILS during the Fall 2012 semester. It was a course that met once a week for about three hours at a time. During class sessions, I sat quietly on the end of one of the rows, and made field notes about class activities, any particularly interesting comments that came up, and thoughts that came to mind. However, while my field notes were concentrated on happenings in the physical space, I also kept the class Twitter feed open on my laptop and made notes about these at times.

3.5.3 ARTIFACTS AND DOCUMENTS

Yin (2009) defines artifacts as “a technological device, a tool or instrument, a work of art, or some other physical evidence” (Kindle Locations 2338-2339). Meanwhile, Merriam (2009) points out that “artifacts” and “documents” are terms that are sometimes used synonymously in scholarly research articles. She notes that she uses documents as an umbrella term, but that “artifact are ‘things’ or objects in the environment differentiated from documents that represent some form of communication” (p. 139).

She elaborates that:

Web pages, papers available through file-transfer protocol, and various forms of ‘electronic’ paper can be considered documents that are simply accessed online. Illustrations and programs – even games – available in static form to be downloaded by the user can be treated as artifacts, as can many of the video formats such as YouTube, MySpace, and Facebook (Merriam, 1988, p. 157).

Merriam's distinction between artifacts and documents is not terribly clear, especially in regard to social media. She notes that web pages can be considered documents, but that elements contained therein (such as videos) could be considered artifacts.

For the purposes of my study, I adopted terminology based on what I feel provided a sense of harmony with the discipline that my research is situated within, as well as my theoretical framework. Thus, I turned to Information Systems to refine that which I consider to be an artifact for the sake of this study, as the notion of the IT artifact has been at the epicenter of many debates within the field (e.g., I. Benbasat & Zmud, 2003; Orlikowski & Iacono, 2001). A recent paper that I co-authored addressed this debate and, based on various definitions in the literature and a review of various papers within the IS field, defines IT artifacts accordingly:

An IT artifact is an entity/object, or a bundle thereof, intentionally engineered to benefit certain people with certain purposes and goals in certain contexts. It is developed, introduced, adopted, operated, modified, adapted, discarded, and researched within contexts and with various perspectives (Zhang, Scialdone, & Ku, 2011, p. 3)

Markus and Silver (2008) considered technical objects to be "IT artifacts and their component parts" (p. 620). Social media and the constituent features of social media are the technical objects of interest for this study. Thus, it is important to make a distinction between them and the artifacts used as data for this study. I use the term "digital artifacts" to connote those "objects" that I will collect and examine to provide me with insight into the types presence expressed by students using social media. As detailed in Chapter 2, the CoI framework consists of three distinct types of presence: social, cognitive, and teaching.

Garrison (2011) defines a presence as “a sense of being or identity created through interpersonal communication” among the members of a community of inquiry (pp. 22-23).

As digital artifacts are created by individuals (in the form of the text of a conversation on a discussion board, a hyperlink, a blog post, a video posted on a content sharing site, etc.), they can reflect a sense of presence. The social, cognitive, and teaching presences typically addressed in the CoI literature have been assessed utilizing text-based discussion boards as digital artifacts as these allowed for members to engage in interpersonal communication. However, within social media, communication can happen through more than just text. To accurately capture the social media used that corresponded to symbolic expressions which communicated these types of presence, I had to collect any digital artifacts used for interpersonal communication. Therefore, I gathered any form of content that denoted electronically transmitted and archivable textual, audio, or video-based communication.

Specifically, the types of textual digital artifacts collected for my case study included Facebook posts, tweets, blogs, YouTube comments, and Blackboard discussions. Digital artifacts taking the form of an audio/video included pictures and videos shared (or embedded) on social media sites or Blackboard. Additionally, documents such as syllabi and formal, traditional print material (even if delivered in electronic form) were also gathered as to provide a full picture of the environs in which I collected data.

In order to capture the appropriate types of data I was interested in, I learned that it was necessary to devise specific techniques for the types of media I collecting data from. For example, with Facebook I could “friend” people from both classes. However, to separate these two groups for data collection, I would need to organize my contacts into lists by class

as this would allow me to view their conversations as distinct streams. Another example came from Twitter. While I could collect data directly from my Twitter feed, the class conversations were typically accompanied by a predesignated hashtag. By displaying only tweets that used these hashtags, I was able to capture distinct threads intended for each class. However, I also captured data that was from class members which did not include the hashtag, as to get a sense if communication occurred among members of the class beyond what was intended for the class itself.

As both classes heavily used Blackboard and social media, there were numerous digital artifacts to collect from these web-based platforms. This meant that I made digital copies of each website page where there was potential data of interest. Where possible, such as Blackboard, I printed the pages as a digital PDF as to retain as much of the original format as I could. In some instances, as with social media sites, the use of “frames” would only allow me to print small sections of each page. Therefore, I copied and pasted the relevant textual and visual data onto a blank Microsoft Word document. As I went along, I imported these into ATLAS.ti, which is the software suite I employed in my data analysis.

3.5.4 INTERVIEWS

Conducting interviews allowed me to elicit data about the nature of students’ educational experiences, and about any potential interplay between both the CoI framework and AST. I refer to those students synonymously as cases, participants, and informants. The latter term I use largely to discuss the interview process, and it comes from Spradley’s (1979) distinction between between actors, informants, subjects, and respondents. He maintains that actors are those that researchers collect data about while making observations.

Informants, meanwhile, are those that the researcher has direct conversations with that are designed to elicit useful and specific data about the phenomenon under investigation.

These are distinct from subjects, who are individuals that are used to test hypotheses. Thus, the role they may play in a study has to do with confirming or disconfirming hypotheses, and researcher interaction with them is directly influenced by preconceived ideas.

Conversely, informants help guide the researcher in terms of what is relevant for what he or she wants to find out. Respondents are those who respond to questions put forth by surveys designed by the researcher. While they provide information, this information is derived from the researcher's questions, and hence, also are directly influenced by preconceived ideas. Informants, however, through their actions and language often lead the researcher to the relevant questions to ask.

Spradley (1979) provides guidelines for conducting ethnographic interviews, which are designed to elicit emic data from informants. Accordingly, he lists three important components to a good ethnographic interview: explicit purpose, ethnographic explanations, and ethnographic questions. With explicit purpose, Spradley (1979) argues that "informants have a right to know the ethnographer's aims," as, "anyone who participates in ethnographic interviews deserves an explanation" (p. 36). Furthermore, informants also deserve some sort of benefit from their participation. This can be highly variable, but might consist of anything from monetary compensation, to a copy of the completed report when finished.

When I announced my presence to the RILS class, I spent about 5 minutes describing my study, advising that if anyone was uncomfortable with me collecting data about them, I

would expunge my records of any information relating to them upon request. I also advised that this would not impact their grade, their instructor's attitude, or my attitude toward them in any way. Following my short presentation, I explained that for those who would be willing to be a case (informant) in my study, any interviews conducted would yield a \$25 Amazon.com gift card as a token of appreciation for their time.

For both distance courses, IITEO and SNL, the instructor disclosed my virtual presence in the course via an announcement from me on Blackboard, as to make my purpose for being there clear. An excerpt from one announcement is printed here as to provide insight into what the students were related.

My name is Michael J. Scialdone and I am a doctoral student at the Syracuse University School of Information Studies (iSchool) in Syracuse, NY. I am interested in understanding the role of Social and Collaborative Media as they relate to the educational experience of students in distance-based and blended educational environments. I have obtained permission from your instructor to make class-wide observations over the length of your course. The observational data I will collect is limited to that which any typical student in the class would have access to. Data that I will include discussion board posts, online profiles, or any additional materials students share freely with everyone. Additionally, I will also collect data from the Social and Collaborative Media platforms that your class utilizes, also limited to content which is accessible to the general public, and/or members of your class. This means I may request to "friend" you on such websites you are using for class. My email address associated with these is mjsresearcher@gmail.com. Emails, submitted assignments, online quizzes, grades, and other private class interactions between individuals (student to student or student to instructor) will not be collected or requested...

Involvement in this study is purely voluntary. You do not have to participate in this study, and I will not be upset if you refuse to do so. You may withdraw from the study easily at any point without penalty from your instructor. I will also omit any data previously collected upon request without question. For example, if you're uncomfortable with having me report on responses you have made on a blog, your comments on a discussion thread, any demographics you have provided, or any other information I collect about you, contact me (or your instructor, who will forward such onto me) at any time (even after the class has finished), and I will omit that information from my study. Your request will not be questioned, nor will it be held against you or anyone else in any way.

The second necessary component for an ethnographic interview is ethnographic explanations. Similar to explicit purpose, these help to provide the informant with what they need to know for their role in the interview process (Spradley, 1979). Ethnographic explanations also help to ensure that the appropriate data is collected from an interview. A subset of these include project explanations, recording explanations, interview explanations, and question explanations.

Project explanations include telling participants what the overall aim of the study is, and specifically why they are being chosen to be interviewed (Spradley, 1979). These differ from explicit purpose in that this explanation focuses on what their role is and how those data from interviews are going to be used. Recording explanations serve to make clear what the investigator is recording during the conversation and why. Interview explanations help to describe in advance what will be asked in a particular session, and may define or clarify certain terms as the investigator asks them. These differ from project explanations, especially when interviewing individuals multiple times (Spradley, 1979). More narrowly,

question explanations help to give the informant context into why you are asking a particular question.

I provided project explanations, in part, while announcing my presence in classes. However, each informant was required to sign a consent form, prior to being asked any questions.

While a copy of the consent form is included in the appendices, an excerpt is provided here to demonstrate how these aided in project explanations.

You have received a copy of this consent form because I am requesting permission to collect additional data from you. To compliment my observational data, I am hoping for the opportunity to interview you on multiple occasions to help me understanding the experiences of students using Social and Collaborative Media These interviews will be scheduled around a time that is convenient for you, and should take approximately 45-60 minutes each. I intend to focus on inquires regarding activities you've engaged in using Social and Collaborative Media sites, tools, and features as part of your formal education...

The benefit of this research is that you will be helping me to understand the student perspective of using Social and Collaborative Media in distance-based and blended learning. This information could potentially be used to help design better Social and Collaborative Media sites, tools, and activities for learning. Such may benefit future students, instructors, and others involved in educational institutions. It may also benefit designers of Social Media in regard to their ability to create sites and tools that support learning activities.

I also explained that I would gladly share my research with them when completed. In order to account for the value of the the data that I gained from informants' willingness to be interviewed, I provided recording explanations (Spradley, 1979) so that they understood exactly what information I was documenting during interviews. When necessary, I gave question explanations, especially when I wanted to ensure that an informant did not

misunderstand what I was asking. For example, as presence is denoted by discourse, I explained that I was going to ask questions about different types of discourse. I noted that social discourse (social presence) included non-academic types of communication, and that intellectual discourse (cognitive presence) was about curiosity, exploring, connecting ideas, and resolving problems that related to topics addressed in the course.

The final component of a strong ethnographic interview that Spradley (1979) espouses are to ask ethnographic questions. There are multiple categories of interview questions advocated by different scholars to elicit useful data. Merriam (2009) helps to distinguish good interview questions from bad ones by providing three types of questions to avoid. These consist of multiple questions, which are those that are single questions strung together that do not allow the participants to respond easily to each part. Leading questions are those where the researcher him or herself influences the potential range of responses (Legard, Keegan, & Ward, 2003), such as accidentally projecting his or her feelings onto the informant. For example, one might respond “well, that must have made you sad,” or “did you feel sad when you heard that?” A more neutral, less leading approach would be to ask “how did that make you feel?” Finally, Merriam (2009) advises that investigators avoid yes-or-no questions as they do not naturally encourage informants to elaborate on a topic.

A broad classification of interview questions comes from Legard et al. (2003) who discuss the need for questions that achieve both breadth and depth. They lay out content mapping and content mining questions, as well as probes to work toward these ends: “Content mapping questions are designed to open up the research territory and to identify the

dimensions or issues that are relevant to the participant. Content mining questions are designed to explore the detail which lies within each dimension, to access the meaning it holds for the interviewee, and to generate an in-depth understanding from the interviewee's point of view" (Legard et al., 2003, p. 148). Meanwhile, probes to questions are determined by responses given and the interviewer's need for further exploration on a matter. These help the researcher to obtain a fuller understanding of, and to elicit expansion on interviewees' opinions, feelings, beliefs, or reasons for something.

Spradley (1979) breaks up interview questions into three categories: grand tour, structural, and contrasting. The first type, grand tour questions, tend to be descriptive and broad, focusing on asking the informant to describe a place, phenomenon, activity, or process. These are very much similar to content mapping questions as they are broad and elicit data that get at a sense of the breadth of a topic (Legard et al., 2003). Structural questions are usually more specific, and may be asked in concurrence with grand tour questions (Spradley, 1979). As such, they are closely related to content mining questions, but may also be similar to probes as they help the researcher to dig for more detailed information, or to confirm or disconfirm a particular point (Legard et al., 2003; Spradley, 1979). Finally, contrasting questions are content mining questions that are used to delineate meaning from an emic perspective by asking how one particular object relates to another (Spradley, 1979).

Meanwhile, Merriam (2009) provides four distinct categories of interview questions meant to provide the researcher with detailed and descriptive data: hypothetical, devil's advocate, ideal positioning, and interpretive (as cited from A. L. Strauss, Schatzman, Bucher, &

Sabshin, 1981). Hypothetical questions are posed to elicit responses that reflect individuals' personal experiences even though they are asked from the perspective of "what if" and "suppose that". While these may or may not be specific, I suspect that their conjectural nature is probably more conducive to content mapping questions (Legard et al., 2003) as informants would be less likely to draw directly on personal examples to respond. Devil's advocate questions are useful for eliciting thoughts and feelings on controversial topics by having respondents consider opposing perspective (Merriam, 1988).

Ideal position questions "ask the respondent to describe an ideal situation," eliciting "both information and opinion," and "are good to use in evaluation studies because they reveal both the positives and negatives or shortcomings of a program" (p. 98). Questions posed from an ideal position could be either content mapping or content mining as they could either provide a sense of breadth or depth for the researcher (Legard et al., 2003). Finally, interpretive questions are those of clarification, whereby the investigator poses his or her interpretation of a topic to an informant and seeks to understand if this is correct or not. These could be content mining questions or probes, similar to what Spradley (1979) calls structural questions.

I posed mostly content mining questions to informants in my pre-pilot study as I had an idea of what type of data I was interested in collecting, but I also included broader, content mapping types of questions so as to capture more exploratory aspects of the phenomenon that I suspected might have some potential relevance or significance. Thus, the questions reflect some very general exploratory topics (such as what students do online besides coursework), but also very specific topics (such as those relating to social media features

and aspects of the CoI framework). Furthermore, I was careful not to ask multiple, leading, or yes-or-no questions (Merriam, 2009).

Marshall and Rossman (2006) advise that qualitative interviews tend to be conversational without a large focus on pre-determined questions as “the participant’s perspective on the phenomenon of interest should unfold as the participant views it (the emic perspective), not as the researcher views it (the etic perspective)” (p. 101). However, in instances when there is a stronger sense of what issues need to be examined in advance, interviews will likely take a more focused direction. Thus, there is:

A stronger emphasis on factual and descriptive data than in the more exploratory forms of data collection. The researcher will play a more active role in moving the discussion through specific areas about which the people’s experiences and thoughts are sought, although there will be scope for participants to move on to these areas spontaneously, and the researcher will still be open to unanticipated issues raised by participants (Arthur & Nazroo, 2003, p. 110).

My interviews were intended to elicit data that were related into my theoretical framework and conceptual model (Figure 9). Some questions were very focused, while others remained somewhat open-ended. These had been refined over the course of my pre-pilot and pilot. The questions asked in the pre-pilot were typically about the community of inquiry and social media features, but in hindsight, I realized that I had failed to properly contextualize and explain that clearly for my interviewees. Thus, with the interviews I collected for my pilot, I explicitly remarked on my interest in knowing about different types of presence (symbolic expressions) as supported by given media. The questions in my pilot also encompassed asking about technical objects and functional affordances they may or may not provide in regard to types of presence found on social media.

The questions posed in the full study were only slightly refined from those in the pilot. However, I did make one major change. I asked students that I interviewed in person (that is, those five from the blended context) to bring in any devices that they used to access social media if possible. This is because during the pre-pilot and pilot studies, there were instances where students attempted to describe a feature or characteristic of social media that was hard for me to follow. Three of the students obliged this request which allowed me to ask them to illustrate specific examples as needed.

In general, I conducted one interview with each instructor, and one or two with each student. I had originally planned on conducting more interviews, but based on the depth and breadth of digital artifacts I collected, I felt as if two interviews gave me sufficient insight into my cases. Unfortunately, one of my cases did not respond to my request for a second interview, while a second was unavailable during the time I conducted them. With the first round of interviews, I tried to keep my questions broad (within the vein of content mining questions as per Legard et al. [2003] or within the vein of grand tour/structural questions as per Spradley [1979]). I also let conversations expand as organically as possible as to best understand what was important and relevant to my interviewees.

My interview protocols are provided in the appendices. Here, I provide some of the main questions asked to each student in the first round of interviews. As symbolic expressions were one known element of my conceptual model (Figure 9), they are key to guiding some of the most important questions that were asked. Hence, I make note of those questions which were guided by those that were about media that communicated value. Also of note,

interviews were tailored as necessary, and hence this list is not a verbatim representation of exactly what was asked:

- At what point are you in your degree program?
- What has been your general experience with using media for classes (online and/or blended)?
- Can you show me how you typically access materials for class online?
- What are the types of things you can know about someone through online transactions?
- Is it important to you to feel socially connected to your classmates?
- In your experience, what is the best medium for an instructor to facilitate intellectual discourse? (*Symbolic expressions*)
- How do you understand what he/she expects of you? (*Symbolic expressions*)
- Does discourse differ between face-to-face discussions and those that happen electronically? (*Symbolic expressions*)
- Where does the bulk of intellectual discussions typically take place, and why? (*Symbolic expressions*)
- What are your thoughts on the ability for social media to support and sustain intellectual discourse? (*Symbolic expressions*)

Based on the open-ended, uncontrollable, and unpredictable nature of qualitative research (Merriam, 2009; Yin, 2009), I did not attempt to predict the outcome of my interviews ahead of time, as this might call biased attention to particular facets of my phenomenon, or could prohibit new and unexpected issues from emerging.

While these questions were very broad to begin with, I probed for more detail especially when it seemed that a student was making reference to any elements of AST. As Markus and Silver (2008) stated, the application of AST assists in addressing the repeating decomposition problem through an understanding of the goals and characteristics of a specified user group. Accordingly, I began my pilot study by purposefully allowing the notion of features to begin as a very general thing. Through the pilot, and later the full study, I narrowed the scope of features (characteristics of technical objects) based on what the students themselves report as meaningful and relevant to them.

Prior to conducting another round of interviews, the existing interview data were analyzed, and I wrote up a draft of my case study profiles, and a draft of my findings. I sent these, along with rough drafts of the first three chapters of my dissertation, to the students I had conducted interviews with. I advised them to read as little or as much of the whole document as they had time to. However, I asked if they could at least concentrate on reading their own case profile, as well as the main findings I had included.

This next (and final) round of interviews were conducted to, in part, serve as member checks. Merriam (2009) advocates the use of member checks to reinforce, refine, or refute suspected explanations in qualitative research. This involves confirming or disconfirming explanations by posing these explanations back to those who data was collected about. Member checks are also known as respondent validation.

Below, I provide a general list of questions that I asked in the second round of interviews. These were much more specific than the first round of interviews, as I tailored them to further elicit additional data based on my suspected findings. Again, this list of questions is

not a verbatim representation of how the questions were asked, nor does it address the specific probes. I also, again, denote those questions which were derived from presence as symbolic expressions.

- Do you engage in any forms of information curation when using social media for classes?
 - What features or tools do you use to manage how you receive information?
 - What features or tools do you use to control who sees your information?
- If social media could be a completely walled garden like Blackboard, would you be any more or less encouraged to use it for classes? (*Symbolic expressions*)
- How do you define the community within your class? Within your program?
- What role do social media profiles play in getting to know your classmates? (*Symbolic expressions*)
- Are some types of social media just more personal (or less professional) by nature? (*Symbolic expressions*)
- How valuable (or intellectual) are the posts that happen on Twitter? Facebook? (*Symbolic expressions*)
- What impact does character limitation have on how people interact? What about no character limitation?
- Does the use of images or video impact various types of presence in any way? (*Symbolic expressions*)

3.5.5 DATA COLLECTION SUMMARY

Table 2 summarizes the types of data to be collected in both the distance and blended contexts, along with a brief description as to the nature of these data.

Table 2: Data Collection Overview

DATA TYPE	DISTANCE CONTEXT DATA COLLECTION OVERVIEW	BLENDED CONTEXT DATA COLLECTION OVERVIEW
Observations	N/A	<ul style="list-style-type: none"> -Notes on class members' face-to-face interaction within Col -Notes to contextualize in-class social media interaction -Note on class members' technology use in classroom -Notes on in-class instructional materials
Artifacts & Documents	<ul style="list-style-type: none"> -Record of all class members' interactions within the Col -LMS discussions -LMS instructional material -Social media class-driven interaction -Social media non-class-driven interactions 	<ul style="list-style-type: none"> -Record of class members' digital interactions within Col -Social media class-driven interaction -Social media non-class-driven interactions
Interviews	<ul style="list-style-type: none"> -Class member perspectives on Col within LMS and social media -Class member perceptions of relevant functional affordances of LMS and social media -Class member perception of connection between functional affordances and Col -Member checks 	<ul style="list-style-type: none"> -Class member perspectives on Col within social media -Class member perceptions of relevant functional affordances of LMS and social media -Class member perception of connection between functional affordances and Col -Member checks

It is important to add that I have also adopted Yin's (2009) position that case studies cope "with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result; relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result; (and) benefit

from the prior development of theoretical propositions to guide data collection and analysis” (Kindle Locations 648-651). This idea of “triangulation” is a term borrowed from land surveying and navigation in which a spot can be located in relation to two or three other points of measurement (Merriam, 2009). For social science researchers, the term has come to mean that multiple and different sources of data serve as “corroborating evidence” to “shed light on a theme or perspective” (Creswell, 1998, p. 202).

For example, preliminary findings from observations may be confirmed or disconfirmed by interviews that are collected independent from the observations. Additionally, it can also allow the researcher to fill in gaps that might otherwise exist if only a single source of data were used (Lancy, 1993). Accordingly, this study uses theory to guide observations, interviews, and artifacts (or documents) to understand, and hence, explain the phenomenon in question from an emic perspective. The specifics about these types of data are explained next.

3.6 DATA ANALYSIS

Data analysis occurred concurrently with other stages in the case study as indicated by Figure 12 (Yin, 2009). For example, as noted above, an initial analysis was conducted of pre-pilot and pilot data as to inform my case study design and subsequent collection of data. Additionally, within the full study, data was analyzed from my first round of interviews in order to inform the types of questions that would be asked in my second round.

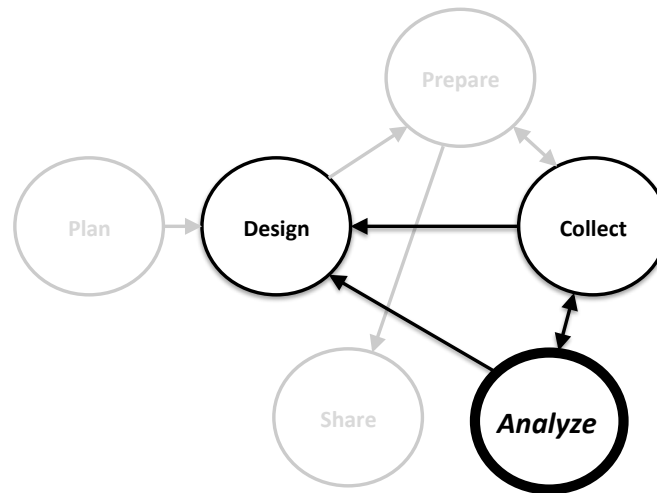


Figure 12: Case Study Data Analysis

Spencer et al. (2003) relate that up until the latter portion of the 20th century, qualitative data analysis was largely neglected in both scholarly literature, and in researchers' accounts of their work. They explain that because of this, methodological processes were difficult to determine and articulate. However, they assert that the process of "analysis is a challenging and exciting stage of the qualitative research process. It requires a mix of creativity and systematic searching, a blend of inspiration and diligent detection" (Spencer et al., 2003, p. 199). This is distinct from quantitative data analysis which is founded on the idea of taking predetermined indicators from somewhere other than the data collected "applied automatically through an algorithmic search process (rather than through reading the data), and analyzed solely quantitatively" (Forman & Damschroder, 2008, p. 40). Quantitative analysis deals with largely decontextualized the data, while qualitative data analysis works through data as it is situated in a naturalistic context.

Accordingly, "the goal of all qualitative inquiry is to understand a phenomenon, rather than to make generalizations from the study sample to the population based on statistical

inference” (Forman & Damschroder, 2008, p. 41). Creswell (1998) explains that process of data analysis in qualitative research is a spiral process, “moving in analytical circles rather than using a fixed linear approach. One enters with data of text of images (e.g., photographs, videotapes) and exits with an account or a narrative. In between, the researcher touches on several facets of analysis and circles around and around” (p. 142).

The design of qualitative research is “typically an eclectic but reasonable and well-considered combination of sampling, and data collection, analysis, and representational techniques” (Sandelowski, 2000, p. 337). This is an accurate portrayal of the methodological approach of my research approach. The key term from the above quote is “well-considered” as there should be a logical and theoretical sense of connection between all parts of a research design. Accordingly, I collected a variety of data and strove to be open and flexible in my analysis. Through the lens of the CoI framework, I took a deductive path in trying to understand the characteristics of educational experience in social media. However, I also took an inductive approach in terms of trying to understand technical objects and functional affordances as students perceived them. Below, I describe my content analysis as my general analytic technique, and then describe how the deductive and inductive approaches as separate but related processes.

Creswell’s data analysis spiral begins with a management loop where the researcher organizes his or her corpus into an appropriate format (Creswell, 1998). Per Schilling’s recommendation (Shilling, 2006), I personally transcribed all of the interviews to better immerse myself with the subtleties in my data. I imported these into the qualitative data analysis software I utilized for this project, along with copies of my digital artifacts and

documents. My observations, which were made over a few sessions in the blended class, were not imported, but they did play a key role in helping me contextualize the case studies in the blended class, as described later, but they did not reveal anything meaningful about my phenomenon in regard to my theoretical framework.

I engaged in the second loop of Creswell's spiral while I was in the first loop. As he describes, memoing and reading are the key activities in this stage of the analysis process (Creswell, 1998). Reading over my data after I had it in the appropriate digital format, helped me to feel knowledgeable about the environments in which I was conducting my study. The next step (or loop) according to Creswell (1998) is reading and memoing, that is, getting a sense of the larger picture. The researcher thus immerses him or herself in the data before beginning to account for which segments and pieces are of relevance to get an idea of the bigger picture. Memos serve as data that can be coded, but are also part of the reflective process (Creswell, 1998; Forman & Damschroder, 2008). Memos help the researcher to get a sense of emergent themes and important connections which may be a part of those. They also provide an audit trail, capturing the analytic process of the researcher, and thus adds a sense of credibility to the conclusions (Forman & Damschroder, 2008). Memos help the researcher to transition to the loop of classifying, describing, and interpreting (Creswell, 1998).

My use of ATLAS.ti allowed me to create and organize digital memos that captured emergent themes and connections as I was stumbling upon them. ATLAS.ti is a well-known computer-aided qualitative data analysis software (or CAQDAS). As explained by Friese (2012), "ATLAS.ti - like any other CAQDAS program - does not actually analyze data; it is

simply a tool for supporting the process of qualitative data analysis” (p. 1). That is, through coding, the researcher tells the computer “which data segment has what kind of meaning” (p.1). Thus, this was an ideal tool for the deep analysis that followed in Creswell’s next loop, where I described, classified, and interpreted my data.

During this loop, Creswell (1998) explains:

Category formation represents the heart of qualitative data analysis. Here researchers describe in detail, develop themes or dimensions through some classification system, and provide an interpretation in light of their own views or views of perspectives in the literature. Authors employ descriptive detail, classification, or interpretation or some combination of these analysis procedures. Detailed description means that authors describe what they see. This detail is provided in situ, that is, within the context of the setting of the person, place, or event. Description becomes a good place to start in a qualitative study (after reading and managing data), and it plays a central role in ethnographic studies (Creswell, 1998, p. 144).

The process of classification involves taking the data apart and looking for emergent dimensions, themes, or categories. Then, interpreting the data is the process of making sense out of it and putting it back together. However, researchers have to be cautious as Marshall and Rossman (2006) warn that one needs to be careful to critically challenge emergent patterns and there are always “other plausible explanations for these data and linkages among them. Alternative explanations always exist, and the researcher must identify and describe them, and then demonstrate how the explanation she offers is most plausible” (p. 162). Member checks (which are elaborated upon in section 3.8) helped to rule out alternative explanations and/or refine current explanations.

In the final loop, representing and visualizing, this interpretation is presented in either textual and/or graphical form. The final phase of the analysis loop has to do with actually presenting the findings of data analysis. Here, the materials that have been described, classified, and interpreted are organized in such a way that tells a story, and can such be presented to an audience.

The remainder of this section emphasizes the second-to-last phase of data analysis, as this is where the bulk of the sense-making from data happens. It is here that, as data are described, classified, and interpreted, the question can be posed how exactly should they be interpreted, To explain this, I describe content analysis as “an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step models, without rash quantification” (Mayring, 2000, p. 5).

According to Forman and Damschroder (2008) there is not clear agreement in the literature as to how exactly to define and conduct content analysis. As, “the goal of all qualitative inquiry is to understand a phenomenon, rather than to make generalizations from the study sample to the population based on statistical inference,” (Forman & Damschroder, 2008, p. 41) qualitative content analysis typically examines data that has been collected to better understand or describe a phenomenon in-depth rather than tabulating variables or other criteria to be measured. The advantage of this type of analysis is that it provides insight into processes (Forman & Damschroder, 2008).

Neuendorf (2002) explains that, in general, content analysis is an effective technique when, “communication content (is the) primary subject of the investigation” (p. 14). She makes

references to text as the message, but further notes that, for example, “the text of a film includes its dialog, its visuals, production techniques, music, characterizations, and anything else of meaning presented in the film” (p. 15). Regarding computer-mediated communication, Henri (1992) claims that it is “a gold mine of information concerning the psycho-social dynamics” (p. 118) for studying educational contexts due to the archivability nature of transactions. However, while Neuendorf and Henri support the notion that communication content is the data of choice for content analysis, Garrison (2006) notes that recorded interactions are a necessary component of content analysis from not just transcripts, but also interviews and questionnaires.

Before content analysis can begin, Schilling (2006) explains that rules and guidelines need to be worked out. However, Elo and Kyngäs (2008) note that this is not a linear process as it is less standardized than quantitative methodologies, and is thus less formulaic. They continue that every analysis is unique because each inquiry has its own distinct goals and motivations, and the result are dependent on the investigator’s analytic skills and insights. Thus, one must mindfully decided which approaches are best for his or her own situation.

Hsieh and Shannon (2005) describe two types of qualitative content analysis. The first is what they refer to as conventional content analysis, which is inductive with the primary aim of describing a phenomenon. A second, more directed approach can occur when a researcher utilizes a existing theoretical framework already established in the literature as a way to further understanding of phenomenon. This is a deductive approach.

My research is a mix of these two approaches. I seek to understand the nature of communities of inquiry in social media within distance and blended learning contexts. To

do this, I am taking an existing theoretical framework (CoI) and applying it to a novel context. This *deductive approach* serves to provide insight into RQ1 and RQ2 as conceptualized by Figure 9. That is, this approach provided a sense of how symbolic expressions in the form of the CoI framework are communicated via these media.

Table 3: Data Analysis Overview

DATA TYPE	DISTANCE CONTEXT DATA ANALYSIS OVERVIEW	BLENDED CONTEXT DATA ANALYSIS OVERVIEW
Observations	N/A	-Not analyzed, but referred back to for completing study report
Artifacts & Documents	-Deductive Content Analysis with CoI framework (artifacts) -Not analyzed, but referred back to for completing study report (documents)	-Deductive Content Analysis with CoI framework (artifacts) -Not analyzed, but referred back to for completing study report (documents)
Interviews	-Inductive Content Analysis based on AST (initial interviews) -Reviewed to confirm, refute, or refine AST themes (member checks)	-Inductive Content Analysis based on AST (initial interviews) -Reviewed to confirm, refute, or refine AST themes (member checks)

Meanwhile, an *inductive approach* largely provides insight into RQ3 and RQ4 as also illustrated in Figure 9. For these questions, unknown functional affordances are a relationship between technical objects and students. Table 3 serves as elaboration as to which data are being analyzed inductively and which are being analyzed deductively.

3.6.1 INDUCTIVE QUALITATIVE CONTENT ANALYSIS

Inductive content analysis allowed me to address RQ3 and RQ4 in regard to understanding how specific features of social media have functional affordances for students. Meanwhile, the findings from RQ1 and RQ2 (those reporting on social, cognitive, and teaching presence as symbolic expressions of value) helped to add additional understanding into the nature of

technical objects that students identified as relevant. As both deductive and inductive qualitative content analysis involve similar processes, I begin with a general description that leads to specifics about inductive content analysis and how it was applied to the present study.

To conduct content analysis, one must first establish a coding scheme (also known as a coding protocol, or code book) (Rourke, Anderson, Garrison, & Archer, 2000; Rourke et al., 2001). Codes are the classification system for qualitative data analysis. Forman and Damschroder explain:

Codes can represent topics, concepts, or categories of events, processes, attitudes or beliefs that represent human activity, and thought. Codes are used by the researcher to reorganize data in a way that facilitates interpretation and enables the researcher to organize and retrieve data by categories that are analytically useful to the study, thereby aiding interpretation. The thoughtful and deliberative development of codes provide rigor to the analytic process. Codes create a means by which to exhaustively identify and retrieve data out of a data set as well as enable the researcher to see a picture of the data that is not easily discernible in transcript form... Codes can be either deductive or inductive. Deductive codes exist a priori and are identified or constructed from theoretical frameworks, relevant empirical work, research questions, data collection categories (e.g., interview questions or observation categories), or the unit of analysis (e.g., gender, rural versus urban, etc.). Inductive codes come from the data itself: analytical insights that emerge during immersion in the data and during what is called "preliminary coding". Although there are studies that use codes developed either deductively or inductively, content analysts most often employ a combination of both approaches (Forman & Damschroder, 2008, p. 48)

The coding scheme operationalizes, that is, defines the codes so that they can be applied to the data (Neuendorf, 2002). Codes and their definitions should be mutually exclusive from one another so that there is no overlap (Forman & Damschroder, 2008). Having a code book helps to ensure that codes are used consistently and reliably, especially when applied by multiple investigators. With respect to inductive content analysis, Rourke and Anderson (2004) describe five essential steps. The first is to identify what types of coding constructs to use, and knowing what types of evidence is needed (unit of observation). Their second step is to study the data itself, once collected, to help identify pertinent behaviors and themes (also known as open coding) (Rourke & Anderson, 2004).

The inductive content analysis that I performed essentially began with open coding, as a general conceptual framework (AST) was guiding me, and I had established my units of observation. I actively thought about technical objects and functional affordances as students may have discussed or defined these in relation to the CoI-oriented symbolic expressions. I adopted what could be considered a grounded theory approach for my pilot study analysis in that coding went through open, axial, and selective coding phases (Creswell, 1998; Anselm L. Strauss, 1987). These coding procedures allowed me to make sense out of these in a comprehensive and consistent manner. Creswell (1998) explains that open coding allows the researcher to dimensionalize the constructs of interest, that is, identifying the gamut of possibilities and similarities in the data. Through the process of axial coding, the researcher then begins looking for similarities within these open codes; and begins to categorically assemble the data and the codes based on these similarities. Finally with selective coding, the researcher begins to apply these codes systematically to

the data in order to establish a sense of coherence and interpret the distinct elements of the phenomenon.

My inductive analysis, commenced shortly after data collection had commenced, and ran concurrent to that process. During the initial open-coding sessions, Strauss (1987) states that the researcher “does not remain totally bound within the domain of these data, but quickly jumps off to wander or speculate or hypothesize about data, and phenomena, at least a little removed from from the immediate phenomenon” (p. 63). That is, as I began the process of open coding, I paid attention to what my interviewees considered to be important, whether it was directly related to the phenomenon I was asking about or not. Therefore, especially during the beginning of my analysis, I had a wide array of codes attached to my interview data. Strauss (1987) advises that this is normal for inductive coding, as some of these codes may later have captured meaningful passages of data, or be illustrative of relevant relationships; or it may not. The other phases of the data analysis process helps to make such a distinction.

Through axial coding, I took my codes and coded segments of data and looked for similar threads and common relationships around which to form categories, as per the recommendations of Creswell (1998) and Strauss (1987). As is the case in this stage of the analysis, “the analyst begins to build up a dense texture of relationships around the ‘axis’ of the category being focused upon” (Anselm L. Strauss, 1987, p. 64). It was while doing this that themes really emerged. One key example is provided here as insight as to how this process worked in this particular study.

I noted above, themes of privacy concerns began to emerge as relevant to the CoI framework with my pre-pilot study. While I was conducting axial coding of my data, I saw I had created open codes such as “concern about identity”, “separate accounts”, “discomfort friending non-friends”, “cautious about over-sharing”, “audience control”. In reviewing them and the data they had been designated to, these all related to some type of privacy concerns. Accordingly, I created a code category for privacy as I continued axial coding.

Another theme that emerged as I conducted my coding had to do with how students managed their engagement across the various types of media. More specifically, I had open codes such as “multiple logins”, “difficulty managing conversations”, “Facebook groups”, “Twitter lists”, and “lack of notifications”; and these ultimately related to issues that had to do with the importance students placed on how they were able to receive information across various media. In continuing to analyze my open codes, it was at this point I realized the privacy concerns expressed by students had to do with the importance on being able to control the information that they shared across media. Therefore, my code for what I had called privacy was now “information flow out” while I also now had a code for the category of issues related to “information flow in”. As these both related to the flow of information, I created a category of codes called “information stewardship” which covered both information flow in, and information flow out.

The stage of selective coding follows after axial coding as codes and categories have been decided upon, and can now be applied systematically to the data (Creswell, 1998; Anselm L. Strauss, 1987). While I conducted open and axial coding concurrently with the collection of data, it took a considerable amount of time to reach the point where I would be ready to

begin selective coding. Therefore, it was a concerted effort that came at the very end of the analysis process, after data collection had been completed. It was through these segments of coded data that I was able to begin the process of describing and explaining what I had come to understand.

3.6.2 DEDUCTIVE QUALITATIVE CONTENT ANALYSIS

Deductive content analysis was applied as the primary means to answer RQ1 and RQ2, as these considered the impact of social media in regard to the value they communicate to students as a user group. Returning to the content analysis guidelines recommended by Rourke and Anderson (2004), once open coding is complete, refining the preliminary coding scheme is essential.

As my deductive content analysis adopted an established coding protocol, little work had to be done in this area. The work of Garrison and his colleagues (e.g., D. R. Garrison, 2011; D. R. Garrison et al., 2000; D. R. Garrison et al., 2006; Rourke et al., 2000) has been constructed around content analysis of text-based computer-mediated student discussion boards. Their work has documented the application and refinement of a coding scheme that contains indicators of the three presences that comprise the CoI framework. I adopted this scheme for this research project, due to its frequent use, and that it has been well-established and vetted in the literature. However, I was mindful that, based on the unique and novel context of my study (i.e., social media), these indicators could be expanded or refined over the course of my pilot and/or full study. Tables 4 through 6 document my initial coding protocols for each of the three components of the CoI framework.

Table 4: Codebook for Cognitive Presence (adapted from P. Shea, Hayes, et al., 2010)

Cognitive Presence Categories	Indicators	Definition
Triggering Event	Recognize Problem	<i>Presenting information that leads to a new question or recognized problem</i>
	Sense of Puzzlement	<i>Directly asking new questions, or messages that divert discussions into new directions</i>
Exploration	Exploration within Col	<i>Unsubstantiated agreement or disagreement (with or without elaboration)</i>
	Exploration within Message	<i>Multiple themes or ideas presented in a single message</i>
	Information Exchange	<i>Personal narratives or facts that adds to points without clearly justifying, defending, or developing a position</i>
	Suggestions	<i>Messages explicitly characterized by author as exploratory thoughts</i>
	Leaps to Conclusions	<i>Unsupported opinions</i>
Integration	Integration with Col	<i>References to previous messages or building off others' ideas, but providing substantiated agreement or disagreement</i>
	Integration within Message	<i>Developed, justifiable, and defensible, yet tentative, hypotheses</i>
	Connecting Ideas	<i>Integration of ideas from multiple sources</i>
	Creating Solutions	<i>Explicitly denoting a message as a solution by author</i>
Resolution	Vicarious Application	<i>Examples provided as to how a problem was resolved</i>
	Defending Solutions	<i>Solution to a problem is defended with details as to how and why it worked or was appropriate</i>

Table 5: Codebook for Teaching Presence (adapted from P. Shea, Hayes, et al., 2010)

Teaching Presence Categories	Indicators	Definition
Design and Organization	Setting/Communicating Curriculum	<i>Communicating expected outcomes (goals, topics, rubrics, etc.)</i>
	Methods for Participation	<i>Clear instructions on how to participate in discussions and activities</i>
	Establishing Time Parameters	<i>Communicating important due dates and course schedule</i>
	Establishing Netiquette	<i>Expressing expectations of appropriate kinds of online behaviors</i>
	Macro-level Comments	<i>Provides rationale for activities, topics, assignments, etc.</i>
Facilitating Discourse	Identifying Agreements and Disagreements	<i>Identifies points on which students are agreeing or disagreeing</i>
	Consensus Reaching	<i>Guidance toward agreement on topics</i>
	Encouraging/Reinforcing Contributions	<i>Positive acknowledgement of participatory contributions made by students</i>
	Setting Learning Climate	<i>Encourages exploration of topics or course content</i>
	Drawing in Participants	<i>Furthering conversation and dialog</i>
	(Re)focusing Discussion	<i>Keeping students on topic with focus on relevant issues</i>
	Summarizing Discussion	<i>Reviewing and highlighting key topics based on student discussion</i>
Direct Instruction	Providing Analogies	<i>Rephrasing/Reformulating materials to highlight similarities between known content and new content</i>
	Offering Illustrations	<i>Making content more comprehensible through substantive examples</i>
	Conducting Demonstrations	<i>Making content more comprehensible through exhibiting processes</i>
	Clarifying Information	<i>Reducing of confusion or misconceptions through additional explanations</i>
	Reference to Outside Materials	<i>Providing useful materials from multiple sources such as articles, textbooks, links, or personal experience</i>

Table 6: Codebook for Social Presence (adapted from D. R. Garrison, 2011; P. Shea, Hayes, et al., 2010)

Social Presence Categories	Indicators	Definition
Interpersonal Communication	Affective Expressions	<i>Explicit expressions of emotion, repetition of punctuation, conspicuous capitalization, and emoticons</i>
	Self-Disclosure	<i>Presents personal details from outside of class; or expressions of likes and dislikes</i>
	Use of Humor	<i>Use of irony, or teasing others</i>
Open Communication	Continuing a Thread	<i>Replying directly to others' messages</i>
	Quoting Others	<i>Directly quoting other class members</i>
	Referring Directly to Others' Messages	<i>Directly referring back to messages by other class members</i>
	Complimenting/ Expressing Appreciation	<i>Complimenting others or the content of their messages</i>
	Asking Questions	<i>Directly asking questions of students or instructor</i>
	Expressing Agreement/ Disagreement	<i>Expressing clear agreement or disagreement with others or the contents of their messages</i>
	Personal Advice	<i>Offering advice specifically to classmates or the class as a whole</i>
Group Cohesion	Vocatives	<i>Referring to others by name</i>
	Inclusive Pronouns	<i>Use of "we, our, us, the group"</i>
	Phatics/Salutations	<i>Greeting or closing, or other communication that is purely social in nature</i>
	Social Sharing	<i>Sharing of information that is unrelated to the course or topics</i>
	Course Reflection	<i>Direct reflection or opinions on the course itself</i>

These codes are indicators of the different types of presence (social, cognitive, and teaching) as described by the CoI framework. For this research, the digital artifacts that were collected capture the interpersonal communication of the class contexts within which

my cases were bound. Thus, the above coding scheme was the basis for my deductive analysis on digital artifacts to yield a descriptive understanding about the values that communities of inquiry express within different media. Further detail on this stage is provided shortly. Rourke and Anderson (2004) advise that once the coding scheme is in place, practicing coding (i.e, preliminary application) on pre-pilot data is helpful to discover which indicators are not being used, and which to refine or reword. Finally, they note that the last stage consists of “developing guidelines for administration, scoring, and interpretation of the coding scheme” (Rourke & Anderson, 2004, p. 8). Details about both of these steps are provided in the discussion of inter-coder reliability below.

In the concluding, interpretive stage of content analysis, the researcher takes code reports, memos, notes, or anything and everything else; and further analyzes and interprets (Forman & Damschroder, 2008). The codes applied to the data allow the researcher to re-assemble the data in such a way that promotes “a coherent and revised understanding or explanation of it” (Forman & Damschroder, 2008, p. 56). The key here is that after much analysis and re-organization, the researcher is in a place to finally communicate what the data means.

3.6.2.1 Inter-coder Reliability

Inter-coder (or interrater) reliability is the primary test of objectivity with content analytic studies. It is defined as “the extent to which different coders, each coding the same content, come to the same coding decisions” (Rourke et al., 2000, p. 4). While section 3.8 of this document discusses the important aspects of validity and reliability as they pertain to this particular study, it makes sense to address inter-coder reliability here as this is a critical

technique of deductive content analysis in particular. The dimensions of validity and reliability discussed later have broader applications (albeit not less important) across this work as a whole.

Typically, the process of deductive content analytic coding is done with two or more researchers at least until they can become reliable (or rather, consistent) in their coding decisions. Calculating inter-coder reliability consists of engaging at least two people in coding a common set of sample material in hopes of ensuring a high likelihood that they will make the same coding decisions (Rourke et al., 2000, 2001). This helps lend a sense of credibility to the investigation, and reduces arguments against subjective application of the coding scheme.

Although my analysis is consistent with the notion of content analysis as “the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh & Shannon, 2005, p. 1278); Lombard et al. (2002) argue that unless some form of inter-coder reliability is established, “the data and interpretations of the data can never be considered valid” (p. 589). This argument is made under their assumption that content analysis is intended to produce quantitatively measurable output.

On the surface, it would appear that much of the scholarship that has been based within the CoI framework has been quantitative in nature as it has applied some variation of the coding scheme outlined in tables 4-6 by counting (or measuring) indicators. However, Garrison et al. (2006) caution that the framework and constituent indicators represents a qualitative approach as this work has largely been intended to understand the nature of

transactional discourse in computer-mediated environments. This is to say that previous content analysis conducted using this scheme may have reported frequencies of codes and/or categories, but that the purpose was not to make statistical inferences. Rather, the intention was to understand and describe students' educational experiences using text-based media.

The findings of the present research project are discussed at length in Chapter 5 in a way that is consistent with the spirit of the CoI framework, that is, delivering a qualitative understanding which has in part been delineated through a technique that involved counting occurrences of indicators. Therefore, measuring inter-coder reliability helped to further establish the credibility of this research.

For this task, I hired a Master's student from the MSLIS program as she was familiar with the context of my study (although she was not a student in any of the classes that my cases were drawn from). As my content analysis assistant, it was necessary to have her trained in the use of ATLAS.ti. Having much experience with the software from previous research endeavors, I conducted training sessions personally using screen-sharing software (as she was not co-located with me).

I also provided my assistant with articles about content analysis and the CoI framework which we later discussed to ensure she had an understanding. Prior to coding data I collected for this project, we coded several hours of test data (as advised by Rourke & Anderson, 2004) that I had collected for my pre-pilot study. This helped my assistant to become further familiar with the coding scheme and ATLAS.ti.

One major challenge of content analysis is deciphering how much evidence is necessary for sufficient indication to be coded. Rourke et al. (2000) call this process unitizing, that is, which segment of text is appropriate. The unit, they argue, should be chosen based on the phenomenon under investigation. Based on this pragmatic approach, a unit can consist of a sentence, paragraph, message, or other more subjective units of meaning. This position is also based on the assumption that a researcher is looking to make quantitative inferences from text-based transcripts.

Our data varied considerably in length depending on the medium it was captured within. For example, some data (generally messages on Blackboard and blog posts) contained multiple paragraphs that evoked multiple themes; while other posts only consisted of one or a few sentences (like social networking site posts, and tweets). In light of this, it became clear to my assistant and I that the paragraph unit felt most natural for us to apply the CoI indicators to, as this would be most consistent across all media.

As per outlines by many scholars who describe the process of content analysis (e.g., Lombard et al., 2002; Neuendorf, 2002; Rourke & Anderson, 2004) we each coded the same short set of data, and then met multiple times per week over the course of about a month and a half to discuss our coding decisions. We kept a spreadsheet of agreements and disagreements from each of these meetings in order to calculate our level of inter-coder reliability. Rourke et al. (2000) explain Holsti's coefficient of reliability (C.R.) (Holsti, 1969) as one of the simplest, yet most common method used to report reliability between coders. This is thusly the formula we adopted:

$$C.R. = 2m / n1 + n2$$

Where: m = the number of coding decisions upon which the two coders agree

n1 = number of coding decisions made by rater 1

n2 = number of coding decisions made by rater 2

Regarding an acceptable coefficient for agreement, Lombard et al. (2002) explain that “.90 or greater are nearly always acceptable, .80 or greater is acceptable in most situations, and .70 may be appropriate in some exploratory studies for some indices” (p. 600). The first few coding sessions resulted in very poor overall inter-coder reliability agreement (well under 60%), but quickly began to improve as we discussed the nature of our disagreements. This allowed us to both better understand the definitions of the indicators, as well as specifically what to look for in regard to them.

There were a number of challenges that made reaching an acceptable level of agreement difficult. The examples of indicators provided in the CoI literature were short (assumedly for the purposes of fitting into a table or list) and removed completely for their original context. This often rendered them ambiguous, especially as our reasoning for designating certain indicators (such as *use of humor*, or *macro-level comments*) to a paragraph regularly involved a careful reading of the context.

For some codes, we found that indicator definitions were also themselves ambiguous. For example, the indicator *affective expressions* includes “explicit expressions of emotions” however it is unclear exactly how explicit those expressions should be. Some words, such as *enjoy*, *interested*, and *content* may express some amount of emotion; while other words such as *excited*, *happy*, and *angry* more clearly evoke a salient sense of emotion. Similarly, with a code like *leaps to conclusion*, it was often hard to delineate when this was appropriate to use. That is, how original did a student’s idea have to be (that is, not drawing on another source) to be considered his or her own rush to conclusive thought; versus how much could

they point to other sources in the formation of that thought before it became *connecting ideas, creating a solution*, or some other higher level of cognitive presence.

To maintain consistency, we kept an ongoing, shared, and updated version of our coding protocol. Notes on each of the codes, and how to apply them appropriately were made as we went on. We also kept track of particularly tricky examples as to be able to make the proper coding judgment should a similar situation arise in the future.

There are additional matters regarding the CoI framework that we considered as we negotiated agreement, such as the nature of the medium on which transactional discourse occurred, as well as the use of embedded media and the potential impact on social, cognitive, or teaching presence. These additional matters are addressed in Chapter 6 where weaknesses in the coding scheme are identified, and suggestions for its application (to social media in particular) going forward are provided. However, in spite of these issues, after the first 2 or 3 weeks of coding, we were typically at somewhere between 70 and 80 percent agreement in relation to the categories within each of the three presences. While we measured our agreement for all of the indicators with coding discussion session, we chose to focus our agreement at the category level. This is because it is at the category level, largely, that the nature of the CoI framework is discussed in the findings. Furthermore, some codes simply did not appear frequently enough for us to have discussions about and hence improve our reliability on.

While we did not consistently reach above 80% agreement, for the purposes of interpretivist qualitative research, this was sufficient. My coding assistant coded about 25% of the Twitter data on her own following our many weeks of inter-coder assessment, which

was when we were at our most consistent All of the other data was coded by each of us independently with frequent discussions (and subsequent resolutions) of our disagreements. This technique, regardless of our coding reliability agreement percentage, at least established interpretive consistency in my deductive analysis. Forman and Damschroder (2008) reinforce this notion in qualitative content analysis writing:

Qualitative researchers who follow a constructivist philosophy do not believe that quantitative measures of reliability are appropriate in content analysis, largely because of their view that unanimity among coders often leads to over-simplification that compromises validity, and that reflexivity and reason-giving are more important aspects of an agreement process than achieving a pre-specified level of agreement independently (p. 55)

3.7 VALIDITY AND RELIABILITY

Yin (2009) explains that “because a research design is supposed to represent a logical set of statements, you also can judge the quality of any given design according to certain logical tests” (Kindle Locations 1049-1050). Regarding empirical social research (which the present study represents), Yin states that there are four test that are commonly employed against case studies. These tests are construct validity, internal validity, external validity, and reliability. Tactics to ensure case studies stand up to these tests are employed throughout the study, beginning with study design. However, for clarity’s sake, I address them each below to provide the reader with insight as to how I employed particular tactics.

3.7.1 CONSTRUCT VALIDITY

According to Yin (2009), construct validity is concerned with ensuring that the correct operational measures are identified for the concepts under investigation. This is important

because “people who have been critical of case studies often point to the fact that a case study investigator fails to develop a sufficiently operational set of measures and that ‘subjective’ judgments are used to collect the data” (Kindle Locations 1069-1071). He goes on to explain that the tactics a researcher uses to ensure that his or her research is able to hold up to threats against construct validity is to use multiple sources of data, establish a chain of evidence (or audit trail), and to have study participants review drafts of case study reports. Interestingly, similar tactics are espoused by Merriam (2009) in regard to case study reliability.

Yin (2009) emphasizes that defining key concepts, and choosing the proper indicators of the phenomenon under investigation, are the main criteria for establishing construct validity. While I had an evidence trail and used multiple sources of data, I choose to describe those tactics in sections 3.8.4 and 3.8.2 respectively as they are best described in regard to how they supported reliability and internal validity, even if they still contributed toward construct validity.

The theoretical frameworks of my study helped to guide my data collection and analysis as described in the sections above. In conducting deductive content analysis to understand the nature of educational experience across different social media (RQ1 and RQ2), I applied the CoI framework. I was confident in the construct validity of the indicators that made up the framework because in the years since its introduction (T. Anderson et al., 2001; D. R. Garrison et al., 2000, 2001; Rourke et al., 2001), it has been thoroughly vetted through the both qualitative and quantitative investigations. While it is generally considered to be a framework for qualitative research, statistical analyses have been conducted on the various

components of the framework (e.g., P. J. Shea et al., 2006) as well as the framework from a holistic perspective (e.g., D. R. Garrison, Cleveland-Innes, et al., 2010) in order to assess the validity of its constituent constructs and their interrelated nature. How these constructs were reliably applied was explained above in section 3.6.1.1.

The inductive analysis conducted to understand social media features and their impact on students' educational experiences (RQ3 and RQ4) was arguably more subjective than my deductive analysis because I was not relying on a theoretical framework that had been well-vetted. Using AST as a guide, I established descriptions of technical objects and functional affordances that emerged as relevant to students within the MSLIS program. To ensure that these constructs were accurate, I asked study participants to review a draft of my findings. Merriam (2009) and Punch (2005) call this tactic member checks, both listing it as a strategy to ensure internal validity. While member checks are described in more detail in the next subsection, I felt that based on the positive feedback I received from members of my study, the technical objects and functional affordances depicted in my research accurately capture those which impact students' educational experiences.

3.7.2 INTERNAL VALIDITY

Yin (2009) writes that internal validity has to do with research that aims to identify causal relationships where “if the investigator incorrectly concludes that there is a causal relationship between x and y without knowing that some third factor—z—may actually have caused y, the research design has failed to deal with some threat to internal validity” (Kindle Locations 1096-1097). Yin's conceptualization of internal validity is that of affirming the accuracy of causal relations between constructs. Therefore, he points out,

internal validity is given most attention in experimental and quasi-experimental studies. As Yin (2009) focuses on internal validity as it relates to qualitative research that, like quantitative research, focuses on casual relations; I instead focus on the notion of internal validity as conceptualized by Punch (2005) and Merriam (2009) as this is more directly applicable to my study.

Indeed, Punch (2005) observes that internal validity is typically most clearly understood within a quantitative context whereby “it means the extent to which the relationships between the variables are correctly interpreted” (p. 254). As internal validity has to do with accuracy, Punch (2005) and Merriam (2009) argue that a similar, but broader view of internal validity is applied to qualitative research. Therefore “internal validity deals with the question of how research findings match reality. How congruent are the findings with reality? Do the findings capture what is really there? Are investigators observing or measuring what they think they are measuring?” (Merriam, 2009, p. 213). The latter question Merriam poses was addressed by Yin’s (2009) notion of construct validity.

Merriam further clarifies that the notion of validity in qualitative research is also sometimes referred as credibility in order to distinguish it from positivist perspectives. She explains:

One of the assumptions underlying qualitative research is that reality is holistic, multidimensional, and ever-changing; it is not a single, fixed, objective phenomenon waiting to be discovered, observed, and measured as in quantitative research. Assessing the isomorphism between data collected and the “reality” from which they were derived is thus an inappropriate determinant of validity (Merriam, 2009, p. 213).

She goes on to say that because the researcher her or himself is the primary data-collection instrument in qualitative research, reality is interpreted largely through his or her interviews, observations, and other data. Therefore, she argues, the researcher is “‘closer’ to reality than if a data collection instrument had been interjected between us and the participants” (Merriam, 2009, p. 214). Nevertheless, there are real tactics that should be employed to demonstrate the accuracy (i.e., internal validity or generalizability) of the study. These include adequate engagement in data collection, triangulation, researcher’s reflexivity, and member checks.

By adequate engagement in data collection, Merriam (2009) is referring back to ensuring that the research has collected data to the point of saturation. As addressed in my overview of data collection (section 3.5.1); the researcher, by being immersed in the field, is able to appropriately evaluate when this has occurred (Ragin, 1994).

Ragin (1994) notes that reaching this “point of saturation” is impossible to anticipate beforehand, but “in general, if the researcher learns as much as possible about the research subject, he or she will be a good judge of when this point has been reached” (p. 86). I am confident that I adequately engaged in data collection because very little new insight emerged between the pilot study and the full study, despite the amount of data that was collected for the full study.

From a broad perspective, Creswell (1998) defines triangulation as a process by which multiple sources of evidence corroborate a perspective or theme better than only one source of evidence could. In section 3.5.5 (data collection summary) I explained that one of the reasons I collected multiple sources of data was for the sake of triangulation. Lancy

(1993) claims triangulation is “the qualitative researcher’s most effective defense against the charge of being subjective” (p. 20). The idea behind this is that because multiple types of data are collected (and from multiple sources), they serve to reinforce each other and weed out inconsistencies or areas in which evidence is weak and/or questionable. Thus, the variety of data and sources collected for this study have worked to contribute to establishing a strong sense of internal validity.

Merriam (2009) points out researcher reflexivity as another tactic for establishing the credibility of a qualitative study. Because the researcher as a human is the primary source of data collection and analysis, she states “investigators need to explain their biases, dispositions, and assumptions regarding the research to be undertaken” as “such a clarification allows the reader to better understand how the individual researcher might have arrived at the particular interpretation of the data” (p. 219).

Throughout this document, I have pointed out several of my assumptions. First and foremost, it is obvious that I am an interpretivist based on the questions and method of my dissertation. The theoretical and conceptual frameworks of this study are tightly bound by interpretivist research. For example, the CoI framework assumes that transactional communication is the core component of students’ educational experience (D. R. Garrison, 2011; D. R. Garrison et al., 2000). Meanwhile, AST presumes a duality of technology in that human being create technology, but that technology contributes toward the structure of the culture it is employed within (DeSanctis & Poole, 1994; Markus & Silver, 2008). As I recognize that the reader may have his or her own assumptions, I explicate mine in this

document to demonstrate the logic and consistency in my research design, data collection, and data analysis.

Punch (2005) notes that member checks are key to maintaining internal validity. Simply put, this means ensuring that research findings are consistent with the reality of those who were under investigation. In qualitative research, these are considered to be “the most critical technique for establishing credibility” (Lincoln & Guba, 1985, p. 314 as cited by Creswell [1998]). Stake (2006) explains:

After gathering data and drafting a report—possibly even thinking that the report may be part of the cumulative rough draft—the researcher asks the main actor or interviewee to read it for accuracy and possible misrepresentation. A similar account is sometimes responded to by a focus group. Both of these provide new data for the study, as well as contribute to the revision and improved interpretation of the reporting (Stake, 2006, Kindle Locations 947-950).

Regarding this tactic, Merriam (2009) explains that “participants should be able to recognize their experience in your interpretation or suggest some fine-tuning to better capture their perspectives” (p. 217). Accordingly, when I discussed my approach to collecting interview data (section 3.5.4), I noted that prior to conducting a final round of interviews, I sent a draft of my findings to all of my participants in the full study. They were instructed to read their individual case portraits and the draft of my main findings. I asked them specifically to address any discrepancies regarding what I reported about them. I also probed to understand if they agreed with or refuted the findings.

While my member checks overwhelmingly confirmed that my findings accurately represented their reality, there were minor details to fine tune (such as mistakenly

crediting a quote to the wrong student, or that a nuance in a Twitter post was not properly interpreted). Therefore, I maintain that the findings discussed in the next chapters are internally valid, and credibly report the experiences of those under investigation.

3.7.3 EXTERNAL VALIDITY

The notions of generalizability and external validity are essentially synonymous in quantitative research (Punch, 2005). Yin (2009) points out that the test of whether or not findings are able to be generalized beyond the context of the present study has been a major barrier to case study research. He explains:

Critics typically state that single cases offer a poor basis for generalizing. However, such critics are implicitly contrasting the situation to survey research, in which a sample is intended to generalize to a larger universe. This analogy to samples and universes is incorrect when dealing with case studies. Survey research relies on statistical generalization, whereas case studies (as with experiments) rely on analytic generalization. In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory (Kindle Locations 1111-1115).

Merriam (2009) argues that when it comes to qualitative research, one should not conceptualize generalizability in the same way as one would with experiments or correlational research. These methods are designed to ensure that results are generalizable to across a wide range of people or settings due to random sampling, assumptions about the sample's equivalency to the population drawn from, controls, and so on. In this vein, Eisenhart (2009) asserts that if qualitative researchers wish to approach generalization from the same perspective as quantitative researcher, they must very carefully design the

study up front to be that of a “typical” case or by choosing multiple sites for comparison of themes between them.

However, in qualitative research, the choice of a case (or cases) is through purposeful sampling “precisely because the researcher wishes to understand the particular in depth, not to find out what is generally true of the many” (Merriam, 2009, p. 224). Thus, similar to Yin’s (2009) notion, Eisenhart (2009) emphasizes that a qualitative researcher might engage in theoretical generalization, or analytical generalizations. That is, the findings of the study may be related back to a theory, and that theory might be refined based on the study’s findings.

Nevertheless, Merriam (2009) seems to favor the idea of transferability to generalizability. She draws on the work of Lincoln and Guba noting that when framing external validity as “transferability, in which ‘the burden of proof lies less with the original investigator than with the person seeking to make an application elsewhere. The original inquirer cannot know the sites to which transferability might be sought, but the appliers do.’ The investigator needs to provide ‘sufficient descriptive data’ to make transferability possible” (Merriam, 2009, p. 225, citing Lincoln & Guba, 1985, p. 298).

In contending that my research is able to pass the test of external validity, I present arguments that both demonstrate generalizability (Eisenhart, 2009; Yin, 2009) and transferability (Lincoln & Guba, 1985; Merriam, 2009). Both Eisenhart (2009) and Yin (2009) frame generalizability within qualitative research in such a way that results should harken back to theory rather than populations at large. Eisenhart in particular highlights this in stating:

In striving for theoretical generalization, the selection of a group or site to study is made based on the likelihood that the case will reveal something new and different, and that once this new phenomenon is theorized, additional cases will expose differences or variations that test its generalizability. The criterion for selecting cases from which one will generalize is not random or representative sampling but the extent to which the cases selected are likely to establish, refine, or refute a theory (Eisenhart, 2009, p. 60).

Indeed, in section 3.3.2, I explained that my cases were drawn from the MSLIS/MSLISSM programs at Syracuse University's iSchool. While recognizing that this is a very particular group of individuals, that is, graduate-level library science students; this overarching MSLIS/MSLISSM context was chosen precisely because of the likelihood that those within it would provide valuable, meaningful insight into the use and impact of social media on students' educational experiences in higher education.

As my study investigates a novel educational technology (social media) within an established theoretical framework (CoI), it makes sense to situate that study within an environ that uses that novel technology frequently. With the iSchool having a strong social media presence, and with many of the MSLIS/MSLISSM faculty embracing social media in their classrooms, it was an ideal choice of context. Consequently, the cases chosen for this study, because of their probable wide exposure to social media, were able to provide insight as to how the CoI framework might be refined as to address more than just text-based discussion boards (as Chapter 6 will discuss).

Merriam (2009) supports Lincoln and Guba's (1985) idea of transferability when it comes to external validity. While the onus is on the reader when a researcher embraces this perspective, there are two particular tactics the researcher must take to enhance

transferability as to maximize the possibility a reader can appropriately transfer the results of a qualitative study to another context. The first of these is by providing rich, thick descriptions of the setting of a study, the participants, and the findings. This allows readers “to determine the extent to which their situations match the research context, and, hence, whether findings can be transferred” (Merriam, 2009, p. 229).

This advice is heeded across Chapters 4 and 5 below. In Chapter 4, I provide elaborate detail about the contexts of my cases, and the cases themselves. When the main findings are described in Chapter 5, specific examples are drawn on to clearly articulate and depict the reality of those who made up the study. The richness of the narration in these chapters contributes to the transferability of the overall study.

The second tactic Merriam (2009) recommends to maximize the possibility of transferability is maximum variation “whether it be the sites selected for a study or the participants interviewed,” as this “allows for the possibility of a greater range of application by readers or consumers of the research” (p. 227). The irony is not lost on Merriam that cases are typically chosen because of their uniqueness, but still, she stresses that researchers should look for variation within or among cases to facilitate transferrable findings.

Maximum variation between my cases is another reason why the MSLIS/MSLISSM programs were chosen as the context for this research. While the cases studied were bound by graduate students taking classes in this program as the unit of analysis, I made this decision by being mindful that graduate students often have a more varied background than undergraduate students. From my own personal experience, graduate students tend to

vary in age and professional history, making them preferable for this type of explanatory and exploratory research. As will be demonstrated in Chapters 4 or 5, there was much variation between cases as to how frequently they used social media, and their perception of its impact on their (and others') educational experiences. In fact, I purposefully sought out at least one case in each context of a student who didn't seem as keen on social media as other students in the class.

3.7.4 RELIABILITY

The final test as to the quality of a case study is that of reliability. Yin (2009) explains that the objective of reliability is:

To be sure that, if a later investigator followed the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions. (Note that the emphasis is on doing the same case over again, not on "replicating" the results of one case by doing another case study.) The goal of reliability is to minimize the errors and biases in a study (Yin, 2009, Kindle Locations 1143-1146).

Merriam (2009) notes that this concept is especially problematic in social sciences for the simple reason that "human behavior is never static" (p. 220). Again, she takes the side of Lincoln and Guba (1985) in favoring the term consistency; that is "whether the results are consistent with the data collected" (Lincoln & Guba, 1985, p. 221). She argues that since a qualitative study can never be exactly replicated (as in a laboratory experiment) a dependable study is one in which the findings are consistent with the data.

Both Yin (2009) and Merriam (2009) have similar, albeit slightly different, conceptualizations of reliability. And consequently, both provide particular strategies for

addressing the problem of reliability (or consistency) in case study research. Merriam's techniques are basically the same as what she prescribes for establishing internal validity: investigator's position, member checks, and triangulation. As these were discussed at length above, I instead focus here on a tactic that both her and Yin (2009) espouse for reliability, which is keeping an audit trail. Accordingly, they both recommend to carefully document each step of the study. Yin compares this to the practices of accountants and bookkeepers, noting how they keep detailed records or their records in case anyone questions it. He asserts, "a good guideline for doing case studies is therefore to conduct the research so that an auditor could in principle repeat the procedures and arrive at the same results" (Yin, 2009, Kindle Locations 1155-1156)

Merriam (2009) explains that this audit trail is essentially "a detailed account of how the study was conducted and how the data were analyzed" (p. 223). She states that a robust description of this is often difficult with the short space provided in journal articles; but in a thesis or book-length work (such as being presented here), the audit trail can be represented by an elaborate methods section (and supporting appendices).

This entire chapter is a very detailed step-by-step guide that explains every step of my research process, which is why it is the longest chapter in this dissertation. From establishing the rationale for selecting a case study methodology, to why particular data were collected, to how the data were analyzed, I have strove to make this chapter a solid audit trail of my work. This, I believe, has demonstrated how I have ensured consistency across the entirety of my research.

3.8 REPORTING THE STUDY

The final stage, illustrated in Figure 12, in the non-linear case study design outlined by Yin (2009) is to share the results with one's audience.

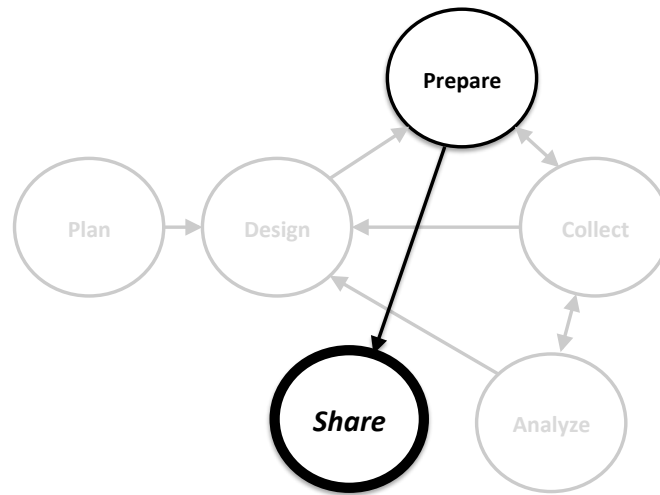


Figure 12: Case Study Data Sharing

Merriam (1988) explains that “there is no standard format for reporting case research” (p. 193). Similarly, Creswell (1998) notes “unquestionably, some case studies generate theory, some are simply descriptions of cases, and others are more analytical in nature and display cross-case or inter-site comparisons. The overall intent of the case study undoubtedly shapes the larger structure of the written narrative” (p. 186). Thus, the nature of how a case study is reported is shaped by the aim of the investigation, the research techniques undertaken, and the audience.

The way I report on my case studies in this dissertation is based on my research questions and framework. In the next chapter, I provide answers to my four research questions, and

follow this in Chapter 5 with an important discussion that makes connections between the questions, and highlights the implications of my study. Ample detail about the cases and context are provided, along with key examples. This is in-line with Merriam's (2009) belief that the defining characteristic of case studies is that "they are richly descriptive in order to afford the reader the vicarious experience of having been there" (p. 258). Additionally, Creswell (1998) recommends that they begin with a vignette, and an introduction to the study (including problem, questions, data collection and analysis techniques). For this research, that was already presented in Chapter 1.

Also of note, Yin (2009) observes that confidentiality and anonymity are concerns when it comes to reporting a case study. He states that these are typically a concern when the topic is controversial or informants are at risk of having their future actions affected by the study. As the individuals I will be report on are students and instructors at a university that I myself attend, I upheld their privacy the best I could by using pseudonyms for them in my reporting. While I do not believe that my study put them at harm's way regarding their ongoing studies or subsequent professional statuses, I made this clear to them when I performed interviews, and in the classes I made observations and collected digital artifacts from.

3.9 PILOT CASE STUDIES

Above I reported on a pre-pilot that was a brief study to help orient me toward the method and boundaries of my research. This pre-pilot study revealed the need to further refine my method through a more in-depth set of pilot studies. In this section, I provide a high-level

overview of my pilot studies with an emphasis on how they informed my approach to the full study.

The purpose of a pilot study is procedural in that it is intended to test the feasibility of the planned full study (Teijlingen & Hundley, 2001). According to Yin (2009) “a pilot case study will help you to refine your data collection plans with respect to both the content of the data and the procedures to be followed. In this regard, it is important to note that a pilot test is not a pretest. The pilot case is more formative, assisting you to develop relevant lines of questions—possibly even providing some conceptual clarification for the research design as well” (Kindle Locations 1977-1980). Therefore, I do not provide much detail about the content of the studies here. A richer description of these pilot studies can be found in Appendix 1, while the report on the full study follows this chapter.

3.9.1 PILOT METHODOLOGY

My pilots were bound within the MSLIS program at Syracuse University during Summer 2012. I identified one distance-based course and one blended course that would be making ample use of social media. I found five students to participate actively in my pilot: two from the distance-based course, two from the blended course, and one who was enrolled in both courses. The findings and lessons learned from these five pilot cases were sufficient to allow me to progress into my full study.

The data collection for my pilot consisted of digital artifacts, observations, and interviews. Digital artifacts were multimedia objects that captured how participants communicated in the classes. Observations consisted of notes that I made during face-to-face sessions of the blended class. Regarding interviews, I conducted one interview with each instructor, and

one or two with each student. The first round consisted of mostly broad questions; while the second (following analysis of much of my data) were more specific as I tailored them to further elicit data and probe on points based on my emergent findings.

The processes of data collection and analysis were concurrent as one informed the other while I undertook both deductive and inductive content analytic approaches. Inductive content analysis was performed primarily on interviews and observations to identify emergent concepts not addressed in the CoI framework, and discover patterns regarding how features of social media impact the different types of presences identified within the CoI framework. I adopted what could be considered a grounded theory approach that took the form of open, axial, and selective coding (Creswell, 1998; Anselm L. Strauss, 1987).

These procedures allowed me to make sense out of these in a comprehensive and consistent manner.

3.9.2 PRELIMINARY PILOT STUDY FINDINGS

The preliminary deductive findings from my pilot were intended to address the impact of social media on students' educational experiences in blended (RQ1) and online courses (RQ2). I found that social media impacted teaching presence through multimedia that helped to set and communicate curriculum in online course; while in blended and online courses, social media could be used to engage students across multiple platforms to encourage and reinforce their contributions, as well as to provide direct instruction in the form of outside materials via easy link sharing. Regarding cognitive presence, I found that social media may support the phases of triggering events and exploration (with an emphasis on information exchange) on Twitter through short messages and link sharing,

and on Facebook through link sharing. Finally, social presence was found to be supported by Twitter in the blended class especially in the form of humor during class discussions. It also appeared to support open communication as students could respond directly to others in a quick and short manner. My pilot analysis also lead me to suspect that image sharing has an influence on social presence, but is not addressed in the current CoI coding scheme.

My inductive analysis primarily helped to address how do specific features of social media impact student experiences inside (RQ3) and outside (RQ4) of the physical classroom.

These three major themes emerged consisting of: immediacy, multimedia engagement, and information curation is regard to social media affordances that students reported as important to them in relation to their interaction with the course.

3.9.3 LESSONS LEARNED FROM PILOT STUDY

Following the process of analyzing my data and summarizing my findings, it was evident that I was able to gain a great deal of insight into my phenomenon of interest based on my planned research procedures. I found that my data collection techniques were indeed appropriate to gather the proper evidence necessary for understanding the problem.

However, I came to understand that additional data collection techniques may help me to answer my questions with even more depth and certainty.

For example, I was able to identify some general technical objects and their functional affordances for members of a CoI, but I had a hard time having students articulate the connection of a particular symbolic expressions to a technical object. Therefore, I realized that for the full study, it would be helpful to conduct interviews in front of a computer so

participants might better recall the symbolic expressions they related to technical objects, as well as any relevant functional affordances they might have otherwise missed.

Another weakness in my method identified by the pilot studies was that no clear distinction emerged between RQ3 and RQ4. On further probing, I came to understand that I did not ask any of my interviewees questions that clearly got at the notion of how social media use occurred while they were in a physical classroom. Thus, the pilot study was helpful in allow me to refine my questions, and to be more mindful in collecting data regarding RQ3.

3.10 REVIEW OF CASE STUDY METHODOLOGY

I began this chapter with a detailed justification for addressing my research problem through qualitative case study methodology. Next, I discussed an overview of case study design with specific application to my research. I then considered the need for preparation (including a summary of my pre-pilot study), data collection, data analysis, and how to report my case study. This was based on the case study design overview provided by Yin (2009). I detailed my finalized study design, with further elaboration on my preparation for this study, planned collection of data, and planned content analytic techniques. Finally, a brief overview of my pilot study conducted in Summer 2012 was given to indicate that the procedures described in the chapter were appropriate, with a few important caveats going forward.

4. CHAPTER FOUR: CASE STUDY FINDINGS

4.1 OVERVIEW OF FINDINGS

This chapter reports on the findings of this multi-case study. To begin, the use and impact of social media on students' educational experiences in blended (RQ1) and online courses (RQ2) is addressed. The Community of Inquiry (CoI) framework, described at length in Chapter 2, conceptualizes an educational experience as being comprised of social presence, cognitive presence, and teaching presence. Digital artifacts were analyzed deductively using indicators from the CoI framework to answer these two research questions. Therefore, the answers are provided within the context of these three types of presence.

The next two research questions ask how do specific features of social media impact student experiences inside (RQ3) and outside (RQ4) of the physical classroom. The answers to these questions were largely derived through inductive content analysis. As the stories of those who are being reported on are so tightly interwoven with the evidence provided to support the findings, portraits are provided for each of the 9 cases to provide the reader with background into the personality and history of each study participant. Portraits for students from the blended course context are provided first, followed by the findings for RQ3 as these are unique to that context. Next, portraits for the students from the online context are provided, followed by the findings for RQ4 as these are applicable to both contexts of interest.

4.2 SOCIAL MEDIA USE AND IMPACT IN BLENDED COURSES (RQ1)

The blended course which served as the bounding environs for the blended cases studies was Reference and Information Literary Services (RILS). The students of this course

frequently used Twitter as a computer-mediated communication tool for transactional discourse, but very little else. While the students I interviewed from RILS were able to speak to the nature of Blackboard, blogs, and SNSs, there were no other digital artifacts from this class I collected because the class as a community of inquiry did not use these additional media for their class. Therefore, these results speak particularly to the use and impact of Twitter within a blended-learning environment as a technical object.

The three categories of presence convey the types of value that Twitter was found to have for students. Table 7 lists these three overlapping categories, and reports on their salience within the data analyzed.

Table 7: CoI Presence Overview for Blended Course

BLENDED PRESENCES	SALIENCE (N=243)*
Cognitive	23.9%
Teaching	18.5%
Social	84.8%

*Salience column may total over 100% as any single unit of meaning (out of 243 tweets) could contain multiple types of presence

Salience indicates the frequency percentage of presence indicators in relation to all of the units of meaning collected. For example, out of 243 units of meaning (for Twitter data, this means each individual tweet was a unit of meaning, and hence listed as the “n”), 206 were coded with one of the social presence indicators. Therefore, 84.8% of tweets indicated the existence of social presence. As illustrated by Table 7 above, 18.5% of tweets indicated teaching presence, while 23.9% indicated cognitive presence. The combined percentage totals are over 100% as a given unit of meaning could be indicative of multiple presences

(for example, a single tweet could contain both social and cognitive presence). The following three subsections further break down the nature of students' educational experience on Twitter within a blended-learning environment.

As Table 8 denotes, of the 23.9% of 243 tweets that contained cognitive presence; 3.7% consisted of indicators within the triggering event category, 19.8% consisted of indicators within the exploration, 0.4% in integration, and none were identified within the resolution category. While a given tweet had the potential to contain multiple indicators of cognitive presence, (and hence add up to more than 23.9% total) the analysis did not show this to be the case.

Table 8: Cognitive Presence Overview for Blended Course

BLENDED COGNITIVE PRESENCE	SALIENCE (N=243)*
Triggering Event	3.7%
Exploration	19.8%
Integration	0.4%
Resolution	0%
Total Cognitive Presence	23.9%**

*Cognitive presence was identified in 23.9% of the blended context data (n=243 units of meaning)

**Column could add up to more than the sum of its total as a given unit of meaning may exhibit multiple indicators of cognitive presence

Teaching presence was the least salient type of presence in the blended-course data, identified in 18.5% of 243 tweets. Table 9 illustrates the categorical specificity of that teaching presence, with 2.5% of tweets being about design and organization, 6.2% about facilitating discourse, and 11.9% about direct instruction. It is noteworthy to point out that if the percentages in this table are summed, they equal more than 18.5%. This is because a

given tweet might have indicated multiple types of teaching presence. For example, a segment of text may have been coded with direct instruction and facilitating discourse, meaning that this segment would be designated once as indicative of teaching presence, but show up as indicative of both facilitating discourse and direct instruction in Table 9.

Table 9: Teaching Presence Overview for Blended Course

BLENDED TEACHING PRESENCE	SALIENCE (N=243)*
Design and Organization	2.5%
Facilitating Discourse	6.2%
Direct Instruction	11.9%
Total Teaching Presence	18.5%**

*Teaching presence was identified in 18.5% of the blended context data (n=243 units of meaning)

**Column may add up to more than the sum of its total as a given unit of meaning may exhibit multiple indicators of teaching presence

Social presence was, far and away, the most salient component of the CoI framework with 84.8% of all 243 tweets containing at least one indicator. Notably, as the Table 10 highlights, many of these tweets contained social presence indicators from multiple categories as the sum of the saliences is well above 84.8%. In particular, 58.4% of all tweets had evidence of interpersonal communication, 48.1% of open communication, and 67.4% of group cohesion.

Table 10: Social Presence Overview for Blended Course

BLENDED SOCIAL PRESENCE	SALIENCE (N=243)*
Interpersonal Communication	58.4%
Open Communication	48.1%
Group Cohesion	67.4%
Total Social Presence	84.8%**

*Social presence was identified in 84.8% of the blended context data (n=243 units of meaning)

**Column may add up to more than the sum of its total as a given unit of meaning may exhibit multiple indicators of social presence

4.3 SOCIAL MEDIA USE AND IMPACT IN ONLINE COURSES (RQ2)

There were two distance courses from which the cases for this research were drawn: Information Technologies in Educational Organizations (IITEO) and Social Networking in Libraries (SNL). They were chosen for their similar subject matter, and because their instructors encouraged the use of various social media for class engagement. Table 11 lists the three overlapping presence categories of the CoI framework, and reports on their salience within the data analyzed across each of four media: Blackboard (BB), blogs, social networking sites (SNS), and Twitter. That is, Table 11 shows how much value each of these media had for students in relation to cognitive, teaching, and social presence. The *n* represents the total number of units of meaning (paragraphs) coded within each medium.

While not considered a category of social media, Blackboard is included for comparison to a “traditional” LMS; perhaps assisting the reader in understanding similarities and differences between this LMS and newer media. Of the 167 Blackboard units of meaning that were coded, 62.9% indicated cognitive presence, 26.9% indicated teaching presence, and 76.6% indicated social presence.

Table 11: CoI Presence Overview for Online Courses

DISTANCE PRESENCES	SALIENCES (N=489)*			
	BB** (n=167)	Blog** (n=156)	SNS** (n=56)	Twitter** (n=110)
Cognitive	62.9%	74.4%	44.6%	71.8%
Teaching	26.9%	16.7%	28.6%	9.1%
Social	76.6%	62.2%	73.2%	73.6%

*A total of 489 units of meaning were analyzed in the distance context

**Salience columns may total over 100% as any single unit of meaning could exhibit multiple indicators of presence

Regarding the social media analyzed within the online course context, there were 156 units coded for blogs. Of these, 74.4% were indicative of cognitive presence, 16.7% of teaching presence, and 62.2% of social presence. There were 56 units of social networking site data coded, consisting of 44.6% that demonstrated evidence of cognitive presence, 28.6% of teaching presence, and 73.2% of social presence. Finally, out of 110 tweets that were analyzed, 71.8% contained at least one cognitive presence indicator, 9.1% had indications of teaching presence, and 73.6% of social presence.

Table 12 breaks down cognitive presence by its constituent indicator categories across the four media under scrutiny.

Table 12: Cognitive Presence Overview for Online Courses

DISTANCE COGNITIVE PRESENCE	SALIENCES (N=489)*			
	BB** (n=167)	Blog** (n=156)	SNS** (n=56)	Twitter** (n=110)
Triggering Event	10.8%	14.7%	7.1%	11.8%
Exploration	38.3%	53.8%	42.9%	65.5%
Integration	24%	17.9%	1.8%	1.8%
Resolution	1.8%	4.5%	0%	0%
Total Cognitive Presence***	62.9%	74.4%	44.6%	71.8%

*A total of 489 units of meaning were analyzed with columns broken down by social media category

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of cognitive presence

***Cognitive presence salience total percentages for all distance context data

Of 167 Blackboard units, 10.8% contained one or more indications of triggering event, 38.3% of exploration, 24.0% of integration, and 1.8% of resolution. Within the 156 blog units analyzed, 14.7% demonstrated triggering event, 53.8% contained exploration, 17.9% contained integration, and 4.5% indicated resolution. Out of the 56 social networking units coded, 7.1% evidenced triggering event, 42.9% evidenced exploration, 1.8% evidenced integration, and there was no evidence found of resolution. Finally, out of 110 tweets that were analyzed, 11.8% were indicative of triggering event, 65.5% of exploration, 1.8% of integration, and again no indication was found of resolution.

Table 13 provides the salience percentages of teaching presence categories across the four media data was collected from. Design and organization was evidenced in 9.6% of the 167 Blackboard units, facilitating discourse in 19.2%, and direct instruction in 6.0%. Out of 156 blog units that were coded, design and organization were present in 0.6%, facilitating discourse in 16.0%, and direct instruction in 2.6%. There was no design and organization

identified in the 56 social network site units analyzed, 5.4% of them indicated facilitating discourse, and 26.8% indicated direct instruction. Finally, 1.8% of 110 tweets demonstrated the presence of design and organization, 4.5% contained facilitating discourse, and 3.6% also were indicative of direct instruction.

Table 13: Teaching Presence Overview for Online Courses

DISTANCE TEACHING PRESENCE	SALIENCES (N=489)*			
	BB** (n=167)	Blog** (n=156)	SNS** (n=56)	Twitter** (n=110)
Design and Organization	9.6%	0.6%	0%	1.8%
Facilitating Discourse	19.2%	16%	5.4%	4.5%
Direct Instruction	6%	2.6%	26.8%	3.6%
Total Teaching Presence***	26.9%	16.7%	28.6%	9.1%

*A total of 489 units of meaning were analyzed with columns broken down by social media category

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of teaching presence

***Teaching presence salience total percentages for all distance context data

Table 14 provides an overview of the percentages of salience for social presence categories within the digital artifact data corpus. There were 167 units of meaning coded within Blackboard, 50.3% of which were indicative of interpersonal communication, 32.9% of open communication, and 31.1% of group cohesion. Within the 156 units of blog data that were analyzed, there was evidence of interpersonal communication in 49.4% of them, open communication in 27.6%, and group cohesion in 17.9%. Out of the 56 social networking site units scrutinized, 55.4% of these contained interpersonal communication indicators, 28.6% contained open communication, and 28.6% contained group cohesion. Finally,

45.5% of the 110 tweets coded evidenced interpersonal communication, 30.0% evidenced open communication, and 50.9% evidenced group cohesion.

Table 14: Social Presence Overview for Online Courses

DISTANCE SOCIAL PRESENCE	SALIENCES (N=489)*			
	BB** (n=167)	Blog** (n=156)	SNS** (n=56)	Twitter** (n=110)
Interpersonal Communication	50.3%	49.4%	55.4%	45.5%
Open Communication	32.9%	27.6%	28.6%	30%
Group Cohesion	31.1%	17.9%	28.6%	50.9%
Total Social Presence***	76.6%	62.2%	73.2%	73.6%

*A total of 489 units of meaning were analyzed with columns broken down by social media category

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of social presence

***Social presence salience total percentages for all distance context data

4.4 BLENDED CASE STUDY PORTRAITS

The following subsections provide background information on the students who comprised the five blended cases studied in this dissertation. For context, the first subsection details the single course that served as the environment in which all five cases were situated, including some notes about the instructor. The next five subsections introduce the students through case portraits.

These case portraits are designed to give the reader insight into the students who provided valuable interview data for this study; interview data which allowed RQs 3 and 4 to be answered. Therefore, the students whose portraits are presented here will be referred back to regularly as these questions and answered and discussed. Of note, these students represent only a small number of those from whom data were collected to understanding

the saliences of CoI indicators. Although cognitive, teaching, and social presences are only meaningful at the community level, these are reported on in respect to these cases (where applicable) below to provide the reader with a further idea as to the value that Twitter was found to have for each student. Two of the cases (Ethan and Ari) do not report on individual CoI saliences. The rationale for these will be addressed in their respective portraits.

Additionally, only social and cognitive presence are reported on as students did not exhibit any teaching presence.

4.4.1 INTRODUCTION TO REFERENCE AND INFORMATION LITERACY SERVICES

The syllabus for Reference and Information Literary Services (RILS) described the course as follows:

Every type of library provides reference services, no matter if the library serves a school, a town, a college or a corporation. The service itself may be provided by a librarian in a library or embedded into a project team. This course focuses on the concepts, principles, and techniques of reference and user services. The course includes information on reference resources, resource evaluation, delivery methods, information literacy, and user instruction.

Learning outcomes for this course were based on a particular set of pertinent American Library Association (ALA) core competencies and Special Libraries Association (SLA) competencies. The syllabus explained that by the end of the course, students would have the abilities to:

Articulate the principles of reference services; communicate the roles of reference services professionals; articulate the differences in the delivery of services in public, school, academic, and special libraries; develop essential reference service techniques; participate in various delivery modes of reference service; locate and use reference sources in a variety of formats;

evaluate reference resources according to user needs; examine tools used to evaluate the provision of reference services; understand the role of instruction in reference services; and comprehend the broader context of reference services, in particular the professional concerns of ethics, equal representation and service, and patron privacy.

The instructor for the course, Ms. Ursula Jackman held a Masters of Library Science degree. She was employed as an Associate Professor of Practice at the time the course took place, in addition to being on the Board of Directors for the SLA. However, across her 20 plus years of professional experience, she was a programmer, analyst, and trainer within the IT field, managed corporate libraries, launched her own consulting firm, and served on the New York State Regents Advisory Council on Libraries. Her profile on the university website notes that rather than engaging in research endeavors, she “participates in library, IT and entrepreneur communities to discover new ideas and bring them into the classroom” with a focus on copyright, digital literacy, digital libraries, and digitization.

4.4.2 BLENDED CASE PORTRAIT #1: RAMONA SHILLINGTON

Ramona, like most of the members of RILS, was in the first year of her first semester in the MSLIS program. She had recently completed her undergraduate degree in English Literature from a small college in a mid-Atlantic state, and unsurprisingly noted that reading is one of her main hobbies. However, she also related that she enjoys participating in sporting activities such as horseback riding and cross-country running. Ramona explained that as an undergraduate, she and her classmates had been discouraged from using social media in the classroom. Therefore, she initially found it weird that Ms. Jackman was such an avid Twitter user.

Nevertheless, she had a relatively low level of participation. Of the 243 tweets (units of meaning) analyzed in RILS, Ramona’s consisted of only 8 as detailed below in Table 15. While that may not provide substantive evidence on its own, this does demonstrate that Ramona’s use of Twitter was much more on the social side (75% of her messages) than on the intellectual side (25%).

Table 15: Ramona’s Cognitive and Social Presence Overviews

RAMONA'S PRESENCES	SALIENCE (N=8/243)*	RAMONA'S PRESENCE CATEGORIES	CATEGORY SALIENCE**
Cognitive	25.0%	Triggering Event	0%
		Exploration	25.0%
		Integration	0%
		Resolution	0%
Social	75.0%	Interpersonal Communication	50.0%
		Open Communication	50.0%
		Group Cohesion	62.5%

*Ramona contributed 8 out of the 243 units of meaning analyzed in RILS

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

“Last class, where you there when Ms. Jackman made us move seats?” Ramona asked me shortly into our first conversation. She was referring to what had clearly been an unexpected and unusual request from a few days prior. Ms. Jackman had proposed, “why don’t you all stand up, and switch to different seats. You’ve all been sitting in the same spots this whole semester, so sit next to someone you don’t know and let’s branch out a bit!” The students obliged despite many of them being obviously taken aback.

Ramona confessed, “ I think it is because she feels like she has lost some control over the class. And I don’t know if she realizes that it is partially from the Twitter. Um, not lost control, but...obviously it doesn’t matter where you are sitting.”

I questioned, “she hadn’t asked you to do that before?”

“Right, no, it is my personal opinion and I could be totally wrong,” Ramona ventured. “She is not quite sure where all of the laughing and joking comes from. And so she figured that if she made us all move...” Ramona trailed off with the implication that Ms. Jackman intended the move to be a way to regain some control in the classroom. She explained that Twitter in particular can have a subversive quality to it as it is almost, “like a way to pass notes in class, and it is kind of sanctioned and encouraged. So, it is this odd balance. You’re getting to say something and the teacher doesn’t know what you are saying, and she’ll know later because I know she looks back at it (the class hashtag - #rils).”

Ramona elaborated that feeling a sense of connection to her fellow classmates was very important, and that Twitter use between classmates “fosters some camaraderie of some sense.” However she also observes, “it is obviously not a super personal tool.” Having come from a small undergraduate college, she relates that she chose to be an on-campus student because “the face-to-face personal contact is important to me.”

Ramona reported using both her smartphone and laptop regularly to participate in social media. While she logged onto Twitter typically only on days when she had class, she checked Facebook “pretty regularly, at least daily.” One of her classes required her to blog weekly, and despite her good intentions of keeping it up, she admits that it will be difficult to once she is not expected to do so for a grade. In fact, she notes that “none of us would be

blogging if it were not for Antonio Darnell (another professor in the program) because we are required to.”

4.4.3 BLENDED CASE PORTRAIT #2: RENEE LIVINGSTONE

Renee struck me as a particularly ambitious student in her early 20’s. Her tone was somewhat soft-spoken, but everything she related to me was done slowly and clearly with rich detail. Upon asking her about her hobbies outside of academia, she cautioned me:

Ok, you won’t expect these. I am a martial artist so I have been doing martial arts since I was a little kid. Okanawa Karate. So much fun, my entire family does it. It is something I love to do. And I am in a fraternity. It is all about community service. And I have been involved in that for several years, holding various positions and I am running for another one next semester: Pledge Master. So, that is taking care of all the little youngins who are coming in. I have been the webmaster for the past year. And besides that I like to shoot bow and arrow and I like to swim and I am very athletic. It is fun for me. Recently, I’m learning how to throw axes.

She attended Syracuse University as an undergraduate as an Information Management and Technology major, which she completed in three years so that she could commence her graduate studies early. Renee, had known since high school that she wanted to do something in library and information studies. From that point on, she had begun to build up “some background, some technology knowledge to get me a little boost. And it was fun, but it was something I am not very good at.” When pressed for more detail, she elaborated that the technical aspect of computer networking and hardware was something she struggled with grasping while she could understand the theoretical at a young age. “ I was at that age where people were starting to use computers from a young age up, and it was very hard for

me as a kid getting used to it. People younger than me not so much. People older than me, either they had an intense interest or absolutely none.”

Table 16: Renee’s Cognitive and Social Presence Overviews

RENEE'S PRESENCES	SALIENCE (N=12/243)*	RENEE'S PRESENCE CATEGORIES	CATEGORY SALIENCE**
Cognitive	25.0%	Triggering Event	8.3%
		Exploration	16.7%
		Integration	0%
		Resolution	0%
Social	100.0%	Interpersonal Communication	83.3%
		Open Communication	41.7%
		Group Cohesion	50.0%

*Renee contributed 12 out of the 243 units of meaning analyzed in RILS

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

As evidenced by Table 16, which shows Renee’s cognitive and social presence relative salience in the course, all of her interactions had a social component to them. Contrasted with 25% of her tweets containing any semblance of cognitive presence, her preference to use social media for social discourse with peers was evident.

“Well, right now I am about 5 weeks behind in blogging because that’s how much I enjoy it,” Renee confessed to me when I asked her about the types of content exchanged on blogs for Antonio’s class. “I don’t have the time to read everyone’s blogs,” she continues. “If you tell me what you want to tell me in a short blurb and then give me a link, so if I have time I can read more or skim, that is wonderful to me. I am not as excited by the blogging aspect of it.”

It wasn't until she began her undergraduate studies that Renee began using social media. She recounted having perceived that Facebook was largely for college students, so she waited until she was in college before joining. Regarding other types of social media, Renee explained:

I had never been interested in blogging - please don't tell my professors. They would hate that. Never into Tumblr as much. Um, Pinterest is cute and fun and all that, but I really started getting into Twitter about maybe a year ago. I was looking at classes and a professor that I knew, Ricardo (pseudonym), he was talking about this Star Trek class he was planning. Oh, this is something different, something fun I can try. I like Sci-Fi, I like weird stuff like that. Maybe I'll learn something, maybe I'll have fun. And it was a lot of fun. It was a lot of engaging during the class that I loved so much. I could talk to students. I could joke around. Or, the professor could be asking questions. Or we could be answering each other's questions. And, because we were watching an episode of Star Trek the whole class, that was our means of communication and I thought that was the coolest thing.

While she hadn't taken any distance courses as of the time of our first interview, Renee noted that it was important for her to feel connected to not only with other on-campus classmates, but also with those who were primarily distance students. She explained that there were some Facebook groups created to for all students in the program to interact regardless of their year or if they were primarily distance-based or on-campus. These groups, as well as Twitter, allowed her to have some interactions with distance students. However, she lamented that she was not aware of many distance students in her year. Despite them interacting via social media with on-campus students, Renee reported that these interactions were "social but it is a little bit more removed."

4.4.4 BLENDED CASE PORTRAIT #3: ETHAN CORNLIN

Ethan Cornline had a particularly negative take on the discourse that could occur on the Facebook groups that students in the program had formed. He noted that when the university had asked alumni and second-year students to comment on what they wish they had gotten out of the program, it became a “bitching session” where “the alumni came out and were just complaining and complaining. It was just so negative about everything.” I assumed, therefore, that the group must have been closed off to faculty; but Ethan assured me that they could see it. During this time, Ethan was largely ignoring the group due to the negative nature of the discussions, but he was paying attention again now that the group was back on track now.

Ethan presented as a confident young man, in his early to mid-twenties. Having studied the performance arts and education at another university in the Northeast, he had taken off a year between completing his undergraduate degree and beginning the MSLIS program in Fall 2012. However, he still kept active with performance arts noting that he was part of a group of library students who were going to carol at nursing homes to help spread holiday cheer. Additionally, Ethan had some experience in student teaching, and had spent a number of years working in retail.

When reflecting on how his fellow students might perceive him, Ethan observed, “ think that I am one of the people who is more active and participates in class. But also, a person who is very likely to say things poorly. To use a poor choice of words. So I think they see that he’s smart, but he’s funny, but he’s just amusing to listen to at the same time.” He noted

that this sometimes made him the butt of jokes in class, but that they were always good-natured and a sign of respect.

Recalling his past use of social media, Ethan stated that he joined Facebook, and used it pretty consistently afterward. He also had experience playing massively multiplayer online (MMO) browser-based strategy games where, “you can do this, and do all your work, and come back. And all of the moves take place 5 hours later. It works really well for me with classes. That was what I mostly did until my Sophomore year of undergrad and then I started on Twitter.” When questioned what he initially used his Twitter account for, he said, “just random - same thing as my Facebook status for. It was one of the reasons I didn’t use it really. Because I just updated my status.”

Ethan was very mindful of privacy in regard to who had access to view his tweets. In fact, he had a protected account, which meant he had to approve individual users to read and respond to his posts. While he granted fellow students access as so he could interact with them for classes, he did not approve my request to view his information. Therefore, I was not able to analyze his Twitter discourse. And hence, there is no table reporting on his cognitive and social presence overviews.

As a graduate student, Ethan expressed that he loves using Twitter for classes explaining, “I don’t have a smartphone still, but I do use TweetDeck, so I can follow everything that happens in all of my classes at all times, you know, and hear what people have to say. It keeps, figuring out whats going on in each little area and I can compartmentalize it.”

TweetDeck, which is a third-party application for Twitter that allows users to have multiple columns of customized tweet streams based on hashtags, groups, or other given criteria.

Ethan stated that RILS tended to have the busiest social media participation out of the other classes he took that semester (although he is quick to point out that one of Dr. Darnell's classes is a close second). He commented that "in Ms. Jackman's class we feel free to just be ridiculous on Twitter sometimes. There are times when people just burst out laughing in the middle of class." However, he noted that even when people made silly comments, they are still related to relevant class topics. "If they are not exactly on the topic, they are in orbit," he assured me. "We are very much focused on what's going on in the class and trying to learn."

4.4.5 BLENDED CASE PORTRAIT #4: SUZY TAYLOR

Like many in her cohort, Suzy appeared to be in her early 20's. She had initially introduced herself to me during the break session of one of the RILS sessions I sat in to make observations on. Her high-level of energy and quick sense of humor stuck out immediately, and it was clear that Suzy was someone who truly enjoyed engaging with others. She reaffirmed this perception when she related that others had described her as very optimistic and enthusiastic. Despite her tendency to speak quickly and to lead our conversations into tangential philosophical matters, her ability to articulate complex ideas revealed her passion for intellectual discourse. "Hobbies? I like to run. Running is good. I like to play Flute. I like to read. I like to talk to professors. That doesn't sound like a hobby officially, but I really enjoy that" Suzy admitted to me during our first interview.

Also in her first semester in the MSLIS program, Suzy had completed her undergraduate at a college in upstate New York. She was a philosophy major with a minor in politics and Italian, although the first two years she was "an exploratory major" as she figured out what

to pursue. When asked about her current social media use, she explained that she had used Facebook since she was a Freshman at her undergraduate institution, and that, “I didn’t use Twitter at all until this Summer when I had to create a Twitter for the iSchool because they really encourage Tweeting and such.”

Suzy presented as a bit hesitant when it came to using Twitter as a discussion tool while RILS was meeting face-to-face. Suzy typically accessed social media outside of class, noting that she had only occasionally brought a laptop in especially because Ms. Jackman “is a very eye-contacty professor”. She pointed out that she didn’t have a smartphone, so that contributed to limited where and when she could access social media.

Table 17: Suzy’s Cognitive and Social Presence Overviews

SUZY'S PRESENCES	SALIENCES (N=14/243)*	SUZY'S PRESENCE CATEGORIES	CATEGORY SALIENCES**
Cognitive	64.3%	Triggering Event	14.3%
		Exploration	50.0%
		Integration	0%
		Resolution	0%
Social	57.1%	Interpersonal Communication	21.4%
		Open Communication	21.4%
		Group Cohesion	57.1%

*Suzy contributed 14 out of the 243 units of meaning analyzed in RILS

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

Table 17 above shows that 64.3% of Suzy’s 14 collected tweets contained cognitive presence indicators, while 57.1% of them were social. Whereas her colleagues Ramona and

Renee demonstrated considerably higher saliences social presence over cognitive presence (3-4 times as much), Suzy's distinctively different pattern of discourse might be attributed to her mindfulness of how she presented herself on social media.

She noted that her profile picture "on Facebook is more family oriented (than Twitter). Because my sister, I mostly use Facebook for keeping in touch with family and sharing photos, and staying in touch with friends and colleagues for the Facebook Library Group. And posting random stuff." However, she cautioned, that she intentionally would typically post updates about her personal life that were mundane such as "just inhaled, just exhaled, that kind of thing. I will only post things that I think are scholarly or I don't know, trying to...well, not always scholarly, but I guess I like to present myself as not the person that is Facebooking constant very egocentricity kind of updates." When asked about her rationale for this, Suzy explained:

Why? Because I don't (pause), I guess because I want to have my profile as representative of me to come and look at and say this is the kind of person you are. It is kind of a habit for the early days of where I don't want to be the person who status-updates, updates their status about things that are banal. And it definitely isn't for other people's convenience. Because, and I am just reflecting on this now, if it made me happy to be like "my dog just threw up on the rug", I don't know (laugh)...and that has definitely happened. If it made me happy to do that, I'd do it. So obviously I do care about what people, and you are scoping people out.

But Suzy admitted to seeing much value in interacting and engaging with classmates and instructors outside of the face-to-face session of her courses. This is why she kept things more "professional" on Twitter than on Facebook.

4.4.6 BLENDED CASE PORTRAIT #5: ARI LOCKE

Ari related that she had the same opinion about Twitter that she did about Facebook. “It is a time waster,” she declared forcefully. “And really what do you say that’s that important? You really going to rock my world with something you’re coming up with? I don’t think so!”

She opined that there might be a correlation between her attitude toward social media and her age. “I didn’t come up learning that stuff,” Ari ventured. “So it is much different for me than maybe some of the people in the class.” She related to me that she was in her mid-30s. While she’d been in classes with students older than her, she suspected she was probably one of the 2 or 3 oldest, if not the oldest, student in RILS.

Having graduated from her undergraduate institution in the late 1990s, Ari recalled that back then, not every student had their own computer. In fact, for her “friends who did have computers, everyone was using it because it was rare.” She noted that computer labs on campus were often where people turned to write email as that medium “wasn’t popular.” To emphasize that this was a time prior to ubiquitous computing, Ari told me a brief anecdote, “just to show (me) how far technology has come,”

I was short a class, so I had to do it, and he let me do it from home. So I went home to New Jersey, I had to buy the textbook, and he would mail me either the test or paper, and I don’t even remember because it was so long ago. But I would write all my answers and mail it back to him, and I got my grade. So I doubt there were online classes. Everyone basically went to the computer labs and stuff. It was a long time ago.

As of the date she was interviewed, Ari had taken one online class in the MSLIS program and related that it was, generally, a positive experience. She liked the flexibility of not

having “to be somewhere physically every week. That I didn’t have to check in for three hours every week.” She did, however, not get as much intellectually out of the discussions that occurred in that class. “I prefer the discussion on campus classes. I think there is a lot more back and forth and free flowing ideas,” she opined. “I just don’t feel like it is as organic as an on campus class.”

Ari, unlike her colleagues profiled above, worked full-time and pursued her degree in the MSLIS program part-time. She was employed in “institutional advancement” for a school on campus, putting together reports and data for advancement officers to “find programs and chairs, get endowments and things like that.” Her enrollment in the MSLIS program began in 2010, and she stated that she had been taking one class per semester since.

She explained to me that feeling socially connected to her classmates was not terribly important for her.

I won't be graduating with any of these people and I know that. I am in it for years and they are here for two years. So I knew that going in, I didn't need to make friends. I won't be a part of the same experience that they are having. Just because our situations are so different. I am older and I have different, I have friends, there are things on the weekend I have to do. My life is just different. I was very good friends with someone who graduated in May. And we would pair up on projects, and she was really nice. I really liked her a lot, and she came over to my house a couple of times. And that was nice, but I knew she would graduate. And I like everyone I go to class with and stuff. But I don't necessarily need to go have a beer with them afterward. And that's okay with me.

Ari explained that she did once have a Facebook account, but she shut it down after realizing that any information posted could “come back to bite us in the ass

eventually...there is so much potential for information going array, that I don't want any of mine out there" She noted that she realized those she was friends with on Facebook she hadn't talked to since high school, and "didn't really care" about knowing more about them. Furthermore, she felt that it was "sucking time" out of her life that she could otherwise dedicate to more constructive matters.

Despite having what she described as a low opinion of social media, Ari had done some blogging in the past. Much like other students I spoke with, she had to have a blogging presence for a course with Dr. Darnell. She described the experience as being okay. "I didn't hate it," she recalled. "It was just something I did for class to get a grade so I did it." She did not blog about anything personal however. "I didn't just go on there to air my thoughts, I went on there to answer assignments." she recounted. "I think we had to read other peoples blogs and comment, and whatever I had to do for class I did. There was no more, and no less."

Because of Ari's non-participation in digital class interactions, there is no table reporting on her cognitive and social presence overviews.

4.5 SOCIAL MEDIA DESIGN AFFORDANCES INSIDE THE CLASSROOM (RQ3)

I drew upon CoI and Adaptive Structuration Theory (AST) to help with guiding my inductive content analysis of observations and interviews. Questions that were asked during interviews were oriented in such a way as to tease out the relevant relationship between students and social media based largely on *functional affordances*. As explained in Section 3.5.4, numerous questions were rooted in the CoI framework as symbolic expressions of value because these represent a predetermined link between technical

objects and students. Posing questions that leveraged this known relationship (albeit unknown in salience, as RQs 1 and 2 addressed) allowed me to maintain a sense of consistency in collecting data that captured technical objects at a consistent level of granularity.

As multiple technical objects were noted to address similar functional affordances, I organize these findings based on the thematically similar functional affordances. These four major themes consisted of: immediacy, multimedia engagement, information flow out, information flow in. As explained in Chapter 2, functional affordances describe the goal-oriented actions of a specific group of users that is made possible by a technical object as opposed to a property of the technical object itself (Markus and Silver, 2008). The three major, distinct themes of functional affordances emerged over the course of the research reported on here. They first emerged during the pilot study, and their significance was prominent in the full study. These identified functional affordances, which are here referred to as **timeliness**, **information curation**, and **multimedia engagement** are defined and discussed below. The first two largely have relevance to communities of inquiry inside the physical classroom (RQ3), while all have pertinence outside of the physical classroom (RQ4).

4.5.1 TIMELINESS WITHIN THE CLASSROOM

Timeliness emerged as an important theme in a number of interviews. By timeliness, I refer to the speed by which information is able to be received or sent, and the duration for which it remains readily accessible. Two distinct affordances of technical objects were described as having an impact on student experience: immediacy and permanence.

4.5.1.1 Immediacy in the Classroom

The affordance of immediacy, that is, the ability to read and send information quickly, was reported to be extremely relevant while students were attending class sessions in the RILS blended-learning course. Accordingly, this leads to recognizing **Parsimonious Communication Tools** (PCTs) as a technical objects within a medium that provide the functional affordance for students to receive and/or send messages across a brief period of time by *restricting the girth and richness of information*. PCTs within a classroom could be recognized in the form of the 140 character limitation in Twitter.

Renee Livingstone had used Twitter in a previous course she had taken were students would watch episodes of the television show Star Trek, and have discussions via Twitter without having to speak while the show was playing. “It was a lot of fun,” she recalled. “It was a lot of engaging during the class that I loved so much. I could talk to students. I could joke around. Or, the professor could be asking questions. Or we could be answering each other’s questions.”

Within a physical classroom, PCTs seem to foster strong interaction for those who choose to use them concurrently with other classroom activities. The speed with which messages could be written and read made it very appealing for students to use during lectures. Suzy Taylor and Ramona Shillington, spoke to the nature of what they perceived to be “real-time” conversations due to the immediacy supported by the 140-character limit on Twitter. Ramona noted that Ms. Jackman called it a “back channel” during in-class sessions, and largely supported its use in her classroom during lectures and other activities.

Ramona explained that using Twitter was also helpful when students had to give presentations in class, as it allowed everyone to give “silent” feedback. She said that her “classmates were really good about tweeting supportive things like ‘great job’, ‘we thought this was interesting’...each person was different but it was great we had this interactive bit or whatever and giving that feedback.” She also noted that this could be a great tool for the instructor to also provide immediate “silent” feedback.

However, Suzy noted that Twitter could be a double-edged sword regarding in-class discussions. She had occasionally brought a laptop to engage in the back channel, but most preferred not to:

It is kind of like passing notes. And I think it is disruptive sometimes because someone will tack something funny which is engaging and conversation and there is a positive, but then at the same time, I mean engaging in that you are laughing, you’re incorporating this into your class so it is positive. But then at the same time someone will burst out laughing and no one knows why. Ms. Jackman is interrupted. and I am sitting there like “what went down?” And not alienated, but you are not part of the other closed loop of Twitter. So it is beneficial to be on there just so you can pass notes. But it is also distractive kind of.

Clearly, there were some differing matters on opinion on the utility of having an active backchannel. Emma Rhinheart was not in the RILS class, but she had experience taking both online and blended courses. In our second round of interviews, she emphasized her belief in its utility as a PCT within the classroom:

If you’re like me, and shy, its easier to talk on Twitter. You can still be a part of the conversation even in a subtle way. It helps me focus, which is kind of funny. You’re paying attention to the teacher and the class. But having Twitter in front of you, it is almost like it helps focus. At least

for me. I noticed in your findings that for some of the people it was the opposite, but for me, it helped me focus.

4.5.1.2 Permanence in the Classroom

Ethan Cornline, who was also a student in Ms. Jackman's class, reported that it could be disruptive, but that he also found real utility out of it for a very different reason than it being a PCT. He began by admitting that due to possible distractions as, "I'd probably be smarter not to use social media. I do have a hard time focusing on the professor." However, he then immediately stated, "but at the same time, I don't have to take notes because I can use the Twitter feed to see what was going on in class."

The affordance of information permanence within a medium suggests that **backlogs** are a technical object within a medium that provide the functional affordance of archiving posts that individuals have shared. As Ethan indicated, this saved him from having to take notes as there was a record of discussion points. For Ethan, the tweets capture what happens within the classroom, but it is useful for him to refer back to when he is outside of the classroom. Indeed, backlogs were also reported by others to have pertinence to their educational experiences outside of the classroom as will be explained in Section 4.7.

4.5.2 INFORMATION CURATION WITH SOCIAL MEDIA IN THE CLASSROOM

Information curation refers to the degree of control over the dissemination or consumption of information within a given medium or across multiple media. While there are overlapping elements related to the dissemination and consumption, the differences between them are meaningful enough warrant a distinction. Thus, the affordance of

information curation is broken down by outgoing and incoming streams of information as to properly address the technical objects that impact these distinct forms of curation.

4.5.2.1 Directing Outgoing Streams of Information in the Classroom

Ramona indicated that the use of hashtags on Twitter could be used during class to both participate in a class-centric discussion, and to go off topic in a way that might be somewhat unnoticed. “I don’t know if you noticed that when people are tweeting in class, not about the class, they don’t use the hashtag” she stated. When I replied that I was not aware of this, she continued, “Our class is really bad about this (laugh). If they go off on a tangent or a joke, they’ll stop using the hashtag and keep responding to one another.” The rationale for this being that instructors, such as Ms. Jackman, would be less likely to see the tangential tweets as they typically check in on class discussions only by using the class hashtag to do so. Ramona explained that if she used the class hashtag, there was a high likelihood Ms. Jackman would see it. But:

If I don’t hashtag it, she might see it anyway. She might go through her feed depending on, you know, if she does it during the break she might just see the home feed and see it anyway like she did with that other comment. That one I had tagged her in so obviously she saw it in mentions. There is more of a chance that she will not go to my personal page and look at everything that I wrote, and that it will just get lost in the whatever.

This suggests the existence and importance of **Dissemination Filters** as a technical object within a given medium that provides the functional affordance of students mindfully being able to controlling how information is disseminated, that is, who and how it can be accessed by others. Hashtags in Twitter can be considered outgoing filters. While these do not restrict who sees what, Twitter users often use hashtags so that a tweet will be seen

within the context of a given topic or discussion (as will be elaborated upon in discussing incoming filters in the next subsection). Therefore, the mindful use of hashtags can impact how and who sees a tweet at a given time. One may also choose to have a “private” account on Twitter, meaning that a user has to approve a follower to have access to his or her tweets and profile.

4.5.2.2 Filtering Incoming Streams of Information in the Classroom

An Incoming Filter is the compliment to dissemination filters, in that they can be described as a technical object that has the functional affordance of students being able to control what information they receive from others. The first type of these, a **Single-Stream Filter** allows one to view one stream at a time from one given medium. As Ramona explained that students used hashtags to direct tweets at a given class conversation or audience, students could also use this to receive information only related to class discussions while in class. Within the classroom, it would seem that these (and lists on Twitter) are most applicable as examples of single-stream filters.

Additionally, Ethan used Tweetdeck, and third-party application, because it was easy to view multiple streams of Twitter hashtags and personal interactions. This was not possible on the Twitter website. In showing his Tweetdeck screen to me, Ethan described:

This is my Twitter time line. This is the SULib hashtag - oh all of us library students here at the ischool. Thats what we mostly use it for. This is for Dr. Darnell's class 511 although Ms. Jackman seems to comment on it a lot. And then this is for my information organization and access cataloging class. Dr. Crumbzt (pseudonym) isn't on Twitter but she gave us the hashtag. I don't know if she has a Twitter account. I don't know if she uses one to spy on us. And this one, as you know, rils12 is Ms. Jackman's. And this helps me keep track of - oh, here are all the

people that mention me, here are all of the private messages that I have got. Well, here are all of the people that - interactions and then mentions. Stuff I have replied to.

As Ethan used TweetDeck solely to manage incoming streams of information within one medium, this could be referred to as having properties of an **Multi-Stream Aggregator** as the app permits him to view multiple streams from a single medium concurrently. Renee used HootSuite, also a third party app, due to the multi-stream aggregation. She related to me:

When I am looking at streams for a class, especially for one like 605 where the back channel is a little bit different than what's actually going on in class just due to the nature of the people involved. I would look at, most of the people in class I follow. So I will have most recent tweets while I am looking at the class, and the classroom hashtag right next to each other. And watch how they play off of each other.

Further affordances of a multi-stream aggregator are further explored in Section 4.7 as they pertain to students outside of the classroom.

4.5.3 SUMMARY OF AFFORDANCES AND TECHNICAL OBJECTS IN THE CLASSROOM

Table 18 provides a summary of the functional affordances and corresponding technical objects described above. Examples are provided of existent technical objects which currently and most famously provide these affordances. As Twitter was the solitary social medium used in the physical classroom on a regular basis for student interaction, these examples shown are most directly applicable to Twitter.

AFFORDANCE CATEGORY	SPECIFIC IN-CLASS AFFORDANCE	TECHNICAL OBJECT	TECHNICAL OBJECT EXAMPLES
<i>Timeliness</i>	Immediacy	Parsimonious Communication Tools	• <i>140-Character Tweet Limit</i>
	Permanence	Backlogs	• <i>Twitter Feed</i>
<i>Information Curation</i>	Directing Outgoing Information Streams	Dissemination Filters	• <i>Hashtag</i> • <i>Account Privacy</i>
	Filtering Incoming Information Streams	Single-Stream Filter	• <i>Hashtag</i> • <i>Twitter Lists</i>
		Multi-Stream Aggregator	• <i>HootSuite</i> • <i>TweetDeck</i>

Table 18: Functional Affordances and Technical Objects in the Classroom

4.6 DISTANCE-BASED CASE STUDY PORTRAITS

The following subsections provide background information on the four students who comprised the distance cases studied in this dissertation. Two of these students were from one course, while two were from another. Therefore, a subsection detailing each of these two courses will precede their respective student portraits, including some notes about the instructors involved.

As with the blended case study portraits in section 4.4, these are designed to give the reader insight into those who provided valuable interview data for this study; which allowed RQ 4, in part, to be answered. Therefore, these students will be referred back to as RQ4 is answered and discussed. As with those in the blended case portraits, these students represent only a small number of those data were collected from regarding CoI indicators. Again, while cognitive, teaching, and social presences are meaningful only at the community level, individual-level silences are reported on here. These CoI categorical saliences

reported on will represent individual interaction across multiple media to provide the reader with a sense of value that each medium was found to have for each student. As students did not exhibit any teaching presence, such is not represented.

4.6.1 INTRODUCTION TO SOCIAL NETWORKING IN LIBRARIES

The learning outcomes of Social Networking in Libraries (SNL) included the ability for students to be able to identify major social media services and their connection to library functions. Students were also expected to construct a plan for using social media to market library services, and demonstrate proficiency with social media. There was also the expectation that they would come away with an understanding of policy changes regarding libraries and social networking.

This was a completely online class offered as an elective in the MSLIS program. A distinguishing characteristic of this course was that, while it was offered through Syracuse University, it was cross-listed as a Web-Based Information Science Education (WISE) class. WISE allows students from an institution to register through that university for a course that is taught online from another university, and still receive credit for it through their home institution. The advantage to this is that “for example, a student interested in digital libraries may access expertise from a wider base of faculty and research than may be normally available within their home school...The WISE student will have the ability to select from an extensive list of online courses, regardless of their location, and take courses with faculty who are highly regarded in their area of expertise” (WISE, 2012). It bears noting that Syracuse University is a founding member of WISE.

I communicated with the instructor of the course, Mary Littleton (pseudonym) through email prior to the start of the course to get an idea as to what types of media they would be using in the course. She explained that the class would be leveraging a number of different types of social media as a way for students to get practical experience with these different tools. According to the syllabus for SNL, the course was designed to familiarize students with “the basics of social networking, and then connect the capabilities and concepts of social networking to the work of librarians. The emphasis of the course is how practical understanding and use of Social Media/Social Networks tie into larger concepts of librarianship including service development, outreach, access and marketing. The course demonstrated practical skills tied to deeper concepts of librarianship, participation, and conversation”.

Regarding her students, she lamented that there were a handful of students who participated fairly regularly in the class, but that there were a few who stuck out who didn't seem to understand that participation in class discussions was a big chunk of their grade. She didn't “like to nag them” because as graduate students, she expected them to be realize the importance of participation. “Most likely this isn't the first online course they've had,” she stated. “The Syracuse students I've had before, and WISE students have to have had an online class. There's one WISE student, who, this is her first online class.”

As the SNL encouraged students to gain experience with various types of social media, Ms. Littleton created a shared spreadsheet hosted on her Google account where students could enter in the names they used on different media so that others could “friend” them. She attempted to have the students use the social networking site Google+ for a course

discussion, but she observed that, “we ended up not doing the whole G+ conversation in innovation because the majority did not like having to go outside of Blackboard, even the Google spreadsheet they don’t like.” She clarified that “its been not just Syracuse, I also teach for Drexel and I’ve taught for SUNYIT. And it just seems that everyone wants it in one place if they have to do it.”

4.6.2 DISTANCE CASE PORTRAIT #1: OLIVE ARLINGTON

Olive Arlington (pseudonym) was a Syracuse University student who appeared to be in her early to mid 20’s. Olive planned to graduate in the Fall of 2012, with one class and an internship left of her degree requirements. At the time of our first interview, she had taken all of her graduate-level classes through a distance mode with the exception of two introductory courses that were 1 week residencies. About her experience in taking most classes online she observes that it has been challenging for her “doing online learning because I don’t have those same connections when I was in a physical environment. I was definitely the kind of student who would go to office hours and would have that kind of one on one interaction with my professors and classmates.”

About the types of presence communicated on the media used in SNL and other classes she stated:

I feel like there is definitely more intellectual conversations on Blackboard. People have way more complete thoughts. And the people I noticed using Facebook for class are posting a lot of articles. On Twitter it is a lot of links or it is a lot of, more personal stuff. Which is not a bad thing at all but it is not necessarily class work. But, I don’t know. It, I think it does make the whole experience a little more complete. I mean, I don’t know any. I don’t know most of them personally. I met a few last Summer so it is nice to see a bit more about their personalities as

well. Compare to just in Blackboard where you're getting their academic views but you're not really learning anything about them.

Table 19: Olive's Community of Inquiry Saliences

OLIVE'S PRESENCES	SALIENCES (N=14/489)*	OLIVE'S PRESENCE CATEGORIES	CATEGORY SALIENCES**
Cognitive	42.9%	Triggering Event	7.1%
		Exploration	42.9%
		Integration	0%
		Resolution	0%
Social	71.4%	Interpersonal Communication	71.4%
		Open Communication	7.1%
		Group Cohesion	21.4%

*Olive contributed 14 out of the 489 units of meaning analyzed in distance courses

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

Olive, however, had major privacy concerns about intermingling her personal social media accounts with the ones she used to engage in academic settings with. This is likely to explain why her representation in units of meaning collected for the distance group of students was relatively small (14 out of 489). Although curiously, she exhibited a high level of social presence (71.4%). Yet, Olive claimed to be a very private person who moved into social media very slowly. Even in her personal life, she is rather cautious about what she shares with others. It is based on such concerns that she had been thinking for around a year about creating a second set of social media accounts (specifically, Twitter and Facebook) in order to utilize for academic and professional purposes. That summer she created a “professional” account for Facebook and was utilizing it in SNL. When asked about

why she only did this for Facebook, she related that she didn't really use Twitter all that much anyway, and that:

I definitely feel like on my personal Facebook I have more people that I cannot control as my friends. And that was more my motivation, not so much what I am sharing, but what people are posting on my wall and everything. And with Twitter, it is easier to not have that kind of stuff connected. You just don't reply and then people don't necessarily know it is there. But if I have to monitor family discussions and have old friends drunk post on my wall or something, I don't necessarily want a certain group of people to see that.

4.6.3 DISTANCE CASE PORTRAIT #2: UMA RYAN

Uma Ryan was a student from the University of Illinois (UoI) who was taking the SNL class through the WISE consortium. This summer was her last semester as a student after having worked on her degree for four full semesters and two summers. While she was taking SNL, she was also taking a class through UoI on classroom management. She had previously taken both online and face-to-face classes. Her distance classes have used both Blackboard and Moodle as LMSs, but they have all had a requirement of meeting at least once during the semester for a face-to-face session.

This session can occur at any time during the semester, but Uma's opinion is that the face-to-face session should come at the beginning of the course as "you get to know your classmates that way...you know what to expect from the professor". She believes it is a very different experience if it happens in the middle, as having it early helps to set a baseline for the course. She attributes part of this opinion to her age, noting that she is "a much older student than average", and that doing online learning for her was new. She said that it felt as if she had "to learn how to go to school again".

She observed that the use of Blackboard was very different at Syracuse University than at UoI. She reports that her impression of Blackboard has been generally positive, but:

I should say the online classes at Illinois are structured very differently since we do get two hours once a week, we have a synchronous session where we all meet...I have yet to see a professor who has yet to really utilize the asynchronous aspect very well. Therefore, the students don't necessarily have to keep looking at it. They may pose some questions so it is helpful. But for the most part, there's, not a lot of interaction there.

Another difference between the LMS use between Syracuse and UoI is that:

The way it is set here at the UoI, every time somebody posts something, a question or comment on the learning space, you receive an email so you know what's going on. Whereas you don't have that announcement so to speak with Blackboard. So I have to remind myself to go in and keep reading and see if anyone's gone in.

Table 20: Uma's Community of Inquiry Saliences

UMA'S PRESENCES	SALIENCES (N=39/489)*	UMA'S PRESENCE CATEGORIES	CATEGORY SALIENCES**
Cognitive	61.5%	Triggering Event	12.8%
		Exploration	53.9%
		Integration	7.7%
		Resolution	0%
Social	46.2%	Interpersonal Communication	15.4%
		Open Communication	12.8%
		Group Cohesion	30.8%

*Uma contributed 39 out of the 489 units of meaning analyzed in distance courses

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

Interestingly, as per Table 20 above, Uma's postings were more cognitively salient than social. Perhaps this was representative of her being an older adult and being more used to engaging in professional environments. Uma had previously had some experience with social media prior to this course. She noted that she had accounts on the major platforms such as Facebook, Twitter, LinkedIn, and Pinterest, but that she was most active on Facebook and Pinterest. She reported, however, that she had been considering creating separate accounts for her personal use and for professional, academic use, but had dismissed it because it seemed like too much of a hassle to maintain. Gaining more exposure to social media in SNL had forced her to "be a little more open to it and putting myself out there. For the most part I have been kind of private and a little suspicious. How much information do I want to share and have others see". Despite her suspicion, she reported becoming much more comfortable with Twitter by the time the class ended. She attributed this to gaining a better understanding of who her audience was as "if I don't have a sense of my audience it is amorphous to just put information out there".

4.6.4 INTRODUCTION TO INFORMATION TECHNOLOGIES IN EDUCATIONAL ORGANIZATIONS

IITEO was an online class offered as a required course for the MSLISSM program, and as an elective in the MSLIS program. It was taught during the Fall 2012 semester by Dr. Nancy Myrtle (pseudonym). According to the course syllabus:

Students will be introduced to a variety of technologies used in education and training, such as web based social software, mapping, webinars, and virtual environments. While assistance in learning to use these tools is available, direct, hands on instruction in specific information technologies is not included in the course content

Students will participate in weekly class discussions, evaluate library websites for informing their own practice, work with partners to evaluate the educational potential of Web 2.0 technologies, and work together in small teams and/or with practitioners on a major technology based project in order to gain practical experience in an educational organization.

The learning outcomes for the course included the “ability to design, manage, and evaluate technologies used in a learning environment,” understanding how to use “emergent technologies for teaching and learning purposes,” and using “computer-based collaborative software as one method for team interaction.” Like SNL, IITEO was delivered largely through Blackboard, with students being required to participate in bullet-board style discussions as part of their grade. However, the syllabus noted that “participation is also encouraged through voluntary participation in a course blog and twitter communications.” About the blogs, it was written that these would be used for students to maintain “informal running conversations” on relevant topics, but that “the instructor will not monitor this area on a regular basis.” Regarding Twitter, the syllabus stated it will be used “to develop connections and increase communications among students. When students find relevant links to useful resources, they are requested to share these links with others by posting to the #IITEO twitter hashtag (a stand-in, for confidentiality purposes, of the designated class hashtag provided in the syllabus).

I had the fortune of speaking with Dr. Myrtle on several occasions. She had a very enthusiastic personality, and related to me that she loved designing classes as she had been trained as an instructional designer. She put a lot of effort into the organization of a course as:

There is nothing more stressful as a student, and I recall, than not having a clear organization. To me, a clear organization includes setting clear expectations. To have your course organized in such a way that it makes it easy for them in terms of sequencing, understanding exactly what you expect from them. That all translates for me into increased confidence and their own student expectations for success. My teaching is guided by some theorists like for example Edward Deci and self-determination theory. And that theory holds that we have, we all have strong needs - the need for autonomy, need for feeling competent about what we do, and the need for relationships. So then I try to build all of that into my course. I try find lots of opportunities for them to practice the skill, or talk about the topic. I provide opportunities for them to do, to have choices in what they want for an assignment. So, instead of saying this is the assignment, this is how it gets done, I give them some range of choice within that assignment. And that's also a way to get them to be more absorbed in the assignment. Much more than invested, and contented with doing and exploring as issue on their own. So I think that increases relevance and confidence.

In the past, Dr. Myrtle had experience using blogs, Twitter, and YouTube for her online classes. When asked how she picked which type of media to use for a given class, she responded “right tool for the right job”. Dr. Myrtle expressed that she liked to encourage students to use Twitter to foster immediacy and social connectedness. In terms of her communication to the class through Twitter, she used it largely to share resources. For example, “what I will say is, I just found this, I just found this on Twitter. I just found this from another colleague so there is my Twitter link, and if you find things like this or other resources this week, please share them with each other... I have a hashtag for that.”

As an instructor, Dr. Myrtle saw herself largely in the role of a facilitator. She explained:

I provide enough content to lay the groundwork and foundation, but I try to leave enough open for them to discover on their own. I encourage the interaction and then bringing in their multiple perspectives on the topic because that increases relevance. And relevance is motivating as we know. I don't see myself in that objectivist role of putting, of laying the learning down, of laying the teaching down for the learners to just absorb. I see it as we are in this together and we are all learning together.

4.6.5 DISTANCE CASE PORTRAIT #3: GRACE JOHNSTON

IITEO was Grace's second class with Dr. Myrtle, as the prior was her first class at the university. In Summer 2012, she took Dr. Myrtle's Youth Services in Libraries (YSIL), a blended, five week course the first four of which were delivered via Blackboard, with the final week being an on-campus residency (a course which bounded some of the pilot studies for my research - see appendix AI for more details). Speaking to her experiences as a student in Dr. Myrtle's classes, Grace explained:

I was really impressed, and I realized in the fall that she set the standard for me by having a little video to introduce the module and topic every week. I thought that was really great. And her almost immediate feedback to everything whether it was commenting on a blog or a video we put up or adding things to Twitter all along. I thought it was great. In the other class I took in the fall where there wasn't any of that. I was disappointed because I was expecting that. The other thing is that IITEO was a really small class. There were only 5 of us, so it was easier to leave comments for 5 people than for 18 or 25. But, yah, I was really impressed the amount of things, every week she made a video and commented on everything.

Grace identified herself as a distance student who already had an MLS degree since 2004. She had dual majored as an undergraduate in International Studies and Music, enrolling in an MLS program a few years later as, "when I graduated obviously I had no idea what I

wanted to do.” She was a very active participant in the class, with her units of meaning representing 115 of the 489 collected for the distance courses analyzed (seen in Table 21).

Table 21: Grace’s Community of Inquiry Saliences

GRACE'S PRESENCES	SALIENCES (N=115/489)*	GRACE'S PRESENCE CATEGORIES	CATEGORY SALIENCES**
Cognitive	85.2%	Triggering Event	15.7%
		Exploration	64.4%
		Integration	13.9%
		Resolution	4.6%
Social	52.2%	Interpersonal Communication	40.9%
		Open Communication	20.0%
		Group Cohesion	17.4%

*Grace contributed 115 out of the 489 units of meaning analyzed in distance courses

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

She began at Syracuse in the advanced certificate for school media program as a school media specialty was not offered at the institution from which she had earned her Masters. She appeared to be in her late twenties or early thirties, and had been employed full-time in the children’s wing of a city public library until she began work on the certificate. To focus more time and energy on the degree, she quit that job and took a part-time position in an independent bookstore as their “children’s specialist” where she was a liaison with a public school.

Regarding her personal experience with social media, Grace noted, “I just generally do Facebook. I have a daughter so a lot of it is like ‘cute kid pictures’ and making sure all the

relatives see pictures of her.” She elaborated that she also engaged in a picture-sharing site called Shutterfly (to share pictures with family) and Goodreads (partially for her own purposes, and partially for work-related reasons). Grace observed that it had been interesting exploring additional types of social media in the classes she had taken with Dr. Myrtle.

Feeling a connection to her fellow classmates was something that Grace deemed important. “I think it is especially (important) because everything I am doing is online,” she advised. “Being able to have everyone post a picture and put a name to the face and things like that, I think it is important to get some sense of that. That’s obviously the part that is missing when you are taking all online classes.” She also related that she had been trying to “keep up with people that I know, that I met in that first class.” Nevertheless, it is curious then that only 52.2% of her messages were indicative of social presence, while 85.2% indicated cognitive presence as per Table 21 above.

4.6.6 DISTANCE CASE PORTRAIT #4: EMMA RHINHEART

“You can only have 140 characters,” Emma said of Twitter. “So that’s not too much of a discussion.” She had previously referred to it as a discussion tool, and I had asked her to elaborate. Recalling that they also used blogs in IITEO, she clarified:

What we would do though is we would make a blog post and we would advertise it. Like a quick little sentence and then blog post. That’s what we used it for sometimes. And other times we used it for, just for our thoughts throughout the module. So we might watch a video about someone, like a librarian or some other person, administrator is talking about different tools they use and how they motivated their students, and we might use Twitter to comment about that. And sometimes, and usually Dr. Myrtle will say you can use Twitter, you can use

something else, she'll tell us different tools we can use but leave it up to us if we want to use it for that week for the discussion. And, basically we would have to check back in once in awhile to see if someone responded to our tweets or something like that.

Emma appeared to be in her early to mid twenties. She described herself as being a quiet individual who didn't "really interact with people very loudly or anything like that if that." She noted that, "I'll have a few friends here and there. I'm not like the type of person that is...friends with the whole, I mean, I am nice with everyone, but I'll try to develop relationships with a few people, a few of my classmates." She had previously earned a bachelors degree in Anthropology. The MSLISSM program attracted her because she was "interested in working with students and/or kids and really helping them, motivating them to learn." She also conceded that another reason was, "I like to read. I like books." In particular, she had a strong affinity for dystopian fiction.

Emma took IITEO during her last semester. She had been considered a full-time, "on-campus" student the entire time she worked on her MSLISSM degree. She explained that halfway through the program, the majority of the program requirements are conducive to online study. This was convenient for her because her husband was working on a degree at a university a few hours away, and so they had been able to move there.

Maintaining a sense of camaraderie with her classmates was important to her because she believed that having a social connection made it easier to work with them as colleagues. Without that connection, Emma posited, "it is difficult to communicate with them on some level because you don't really know your classmates, even if it is just a few of them as opposed to all of them."

Table 22: Emma's Community of Inquiry Saliences

EMMA'S PRESENCES	SALIENCES (N=56/489)*	EMMA'S PRESENCE CATEGORIES	CATEGORY SALIENCES**
Cognitive	91.1%	Triggering Event	12.5%
		Exploration	71.4%
		Integration	16.1%
		Resolution	7.1%
Social	71.4%	Interpersonal Communication	58.9%
		Open Communication	25.0%
		Group Cohesion	30.4%

*Emma contributed 56 out of the 489 units of meaning analyzed in distance courses

**Category salience sums may exceed presence totals as a given unit of meaning may exhibit multiple indicators

Even though Emma exhibited more cognitive presence than social presence, Table 22 indicates that 71.4% of her interactions were at the social level. Considering that she had a sense for what it was like to pursue her degree both as an on-campus student and a distance student, I asked her if that sense of connection was any different depending on her mode of study. Emma replied with the following:

When you are on campus as opposed to distance, it is very different. When you are distance whether it is doing it for fun, like hanging out for fun or doing a project, we made a lot of use of Skype and emailing each other and Google docs and all that. It was very important when I was distance. When I was on campus, it was easier to meet up physically and then do stuff together. When everyone was separate, especially in IITEO with Dr. Myrtle, I think all of us were distance, or 4 or the 5. So we had to really make use of the technology that was available to best way in order to communicate with each other. It was very tricky when you're online.

Emma noted that in her personal life, on her computer “the thing I use the most is Facebook.” When asked if she engaged in using other social media, she proclaimed that “I think of social media as - if you can link your Facebook account to it.” She related that she used Pinterest frequently, but didn’t do much with Twitter besides using it for some classes. “I don’t actually have a smartphone,” she explained. “(So) it isn’t easy for me to check on those kind of things, or any social media really.”

4.7 SOCIAL MEDIA DESIGN AFFORDANCES OUTSIDE THE CLASSROOM (RQ4)

4.7.1 *TIMELINESS OUTSIDE THE CLASSROOM*

In the previous section, timeliness of social media was noted as a recurrent functional affordance reported by multiple students as having a bearing on their educational experience within the classroom. There were additional implications related to this theme outside of the classroom in terms of immediacy and permanence.

4.7.1.1 Immediacy Outside the Classroom

The notion of parsimonious communication tools (PCTs) as technical objects that allow for the quick sending and receiving of messages was noted as possibly being the character-limitation in Twitter. It was also reported that immediacy as afforded by the “like” option on Facebook and other social media, or the existence of a post-rating system contributed to immediacy outside of the classroom.

Ramona had noted that one of her classes had a shared blog where all students had to make required posts over the course of the semester, but were encouraged to make optional posts and comments. This particular blog had a “like” option (which is the only instance anyone related to me that blogs could have this functionality), and she stated that this was

“nice because then I don’t actually have to respond to it, but she can see that I saw it and interacted with it”.

Immediacy was also a concern for Emma Rhinheart, a student in Dr. Myrtle’s distance-based class. She observed:

When you have a Blackboard post and you have like 20 posts that you are trying to read through, those can be like essays. Those can be 20 pages long each, well not really, but they can be really long. Whereas when you are on Twitter, the max, the absolute max someone is going to tweet is 140 characters. And yah they may take up three tweets of 140 characters but thats not a lot really when you are thinking of the scope of things. So I like that a tweet will make you get to the point. You might have this 20 page post. And you may post a link to it. And that’s fine, and I can always go back later. But the thing I like is that it gets right to the point. Do I even want to read this cuz I can see whatever. I think that’s valuable.

Renee expressed sentiments similar to Emma’s. Renee was forthcoming in admitting that that she did not like blogging. She also perceived that her fellow students had not been terribly passionate about it either. Comparing it with Twitter, she observed, “there are more ideas being tossed around because it is mandatory.” The length of blog posts, and the time required to read them, was problematic for her. She implied that the brevity of communication on Twitter increased the degree of interaction that occurred:

Information-wise (blogs are) more valuable than the Twitter feed I suppose, but it is not as - there isn’t the speed of getting that information. You have to actively search it through the other students. Yes you can follow other blogs, but they are lengthier chunks of reading. And I can’t speak for other people in my year, but I don’t have the time to read everyone’s blogs. If you tell me what you want to tell me in a short blurb and then give me a link, so if I have time I can read more or skim, that is wonderful to me.

The above two comments from Emma and Renee illustrate that long content posts require lengthier chunks of time to read, and therefore may decrease interaction between students. compared to shorter forms of communication. Accordingly, **Liberal Communication Tools** (LCTs) are technical objects within a medium that provide the functional affordance for students to send and receive lengthy chunks of text-based information. These do not foster a sense of immediacy, but rather encourage reflection and deeper thought through not imposing a tight character restriction or sense of immediacy.

Grace Johnson, a distance student, addressed LCTs when speaking about the nature of media where one could take his or her time in posting to:

I think that with online discussions and things like that, it is something more polished that what you would have if you were having a discussion in class because you are thinking about what you are writing, and then you edit it and revise it and then send it to everybody. So I think, I think that is one thing that would be different than just being in a physical class with somebody. People are maybe taking more care to make their points, or at least things across maybe clearer than they would otherwise.

4.7.1.2 Permanence Outside of the Classroom

Ethan expressed that by Twitter keeping a record (at least over a certain period of time) of the discussions that ensued in his blended class, he didn't have to keep notes and could later refer back to them outside of class. However, he also indicated that there was a social benefit from backlogs as, "if I am to get (to know) who that person is and what they are really trying to say, I need to be there with them talking to them and asking questions." However, he noted that as Facebook maintains a record of what contacts shared, "that is where you can really get a feel for who they are because you can see pictures that, and you

can use more text. You have more pictures that they post. You can actually see the long term history of what they have said and done.”

Examples of backlogs could take the form of a Facebook “timeline” and photo albums, or the pages of a blog that show previous posts. Multiple students reported that Twitter seems to have an ambiguous time frame when it comes to how long one’s tweets remain on his or her personal page. But, they seem to disappear after either a certain number, or a certain time frame.

Ari Locke, yet another member of Ms. Jackman’s class, had concerns that the permanence of information stored online could “bite us in the ass” one day. As someone who described herself as disliking social media, she also expressed that she didn’t need any type of online social connections with others. She had previously had a Facebook account, but deleted it after awhile. Ari related, “I know from doing research on people that there is a lot of information out there on people. And it is too late in my case, like the Facebook account and stuff.” When probed as to why she terminated her profile, she expressed that this was related directly to the backlog of information kept on social media sites. “I don’t want people that I don’t care about knowing what I am doing,” She stated. “And I hate it that there are pictures of my daughter online now forever. People know her name. They know I am her parent. They know my husband’s name.”

4.7.2 INFORMATION CURATION OUTSIDE THE CLASSROOM

The theme of information curation as allowing control over the dissemination or consumption of information was described above as impacting educational experiences

within the classroom as related to outgoing and incoming streams of information. These also were found to have impact outside of the classroom.

4.7.2.1 Directing Streams of Information Outside the Classroom

Ari's dislike of social media was in part related to her concerns about sharing information with others due to the permanence of that information. She addressed this by canceling her Facebook account and not participating on other types of social media such as blogging and Twitter. However, she was not the only student who expressed worry over what types of information others would be able to discern through social media interaction.

"I am a very private person," Olive Arlington, a distance student from Ms. Littleton's class confessed. "Moving into social networking was a very slow process for me. I still don't have that many friends on my personal Facebook. And I am still really cautious about what I am sharing." Olive explained that she had two Facebook accounts, one that was for personal use and one that was for professional purposes (i.e., engaging with classmates and instructors for classes). She said that aside from Ms. Littleton's course:

The only other class that's really kind of encouraged social media use was one of the introductory courses...I had to set up my Twitter for that class. Um, and that was my first, well, I had one before but I wasn't as active on it. SO I started a new one for the program. And we set up a blog and um, we ended up being friends on Facebook with most of the people in the program. But, I didn't at that point have a professional Facebook. Which is what I have now. I have set up a new Facebook account so I can separate the personal and the professional friends that I have so I don't have to monitor my little sister more than anyone. (laugh)

While Olive was the only one of my cases who personally reported creating separate accounts due to privacy concerns, others noted that they had considered it. One such

individual was Uma Ryan, one of Olive's classmates. "I know that I have recently thought about it myself just in order to kind of keep it separate," Uma admitted. "But then I thought the idea of having to create and having to keep up with so many more accounts just didn't appeal to me. Seems like a hassle." She further opined that in addition to being a possible privacy concern for some, she had a sense from some of her classmates that, "they really wanted Facebook to be a personal social experience. I think they really didn't want school or career or too much of anything else to fall into their Facebook life."

This above suggest the presence of **Identity Management** as a technical object within a given medium that provides the functional affordance of students being able to hold multiple accounts. As certain students want a distinct, professional identity to engage in academically with, this feature helps to facilitate students engaging in intellectual discourse. This may be as simple as any website allowing one user to generate multiple accounts.

Identity management is one form of curating the outgoing flow of information via social media. Most of the students representing the cases presented for this study, were comfortable with a single identity on a given platform. However, there were still concerns expressed over how they were perceived by others within the class. These individuals spoke about being able to utilize privacy settings that would control who was able to see what information from or about them, often related to the need to project a professional identity to other members of the CoI.

Ethan recognized the need for privacy before becoming an MSLIS student. He explained:

With Twitter too, I don't talk about that stuff. All they know is that I am a library student at SU. And, that narrows it down a lot, but I don't think there are many malicious people trying to find librarians because we have so much money in our bank accounts. So I guess I am cautious but not as cautious so much it weighs on my mind or worry that it compromises my privacy.

Dissemination filters, described inside the classroom as allowing for class-specific discussions work similarly outside of the classroom. On Twitter, one can make an account “protected” as to only allow those who are approved contacts to see his or her content. Dissemination filters might also be recognized in the form of options that allow one to designate contacts under specific lists (as on Facebook and Twitter) or circles (as on Google Plus) so that a post can be directed only to members of that list or circle. Additionally, Similarly, as indicated by Ethan, he applied strong privacy settings to his Facebook account in terms of who is allowed to see what. Grace elaborated on this point as to the privacy settings on her Facebook:

I appreciate that you can customize who gets to see what, but I've only done that a very little bit. I do it a little. My husband and I, like my husband's grandfather is on Facebook, and we said, “okay we'll be your friend” but then we just hid like, you don't need your elderly grandparents to see everything you're doing on Facebook. So for specific situations I have. Another time I did it is when I knew I was leaving a job but hadn't told them yet, and I was picking who could selectively see that.

4.7.2.2 Filtering Incoming Streams of Information Outside the Classroom

Having the ability for a single-stream filter was reported as pertinent to those within the classroom to receive only information from those they were in class with, or having class-related conversations with. However, this was found to extend outside of the classroom as well. For example, Olive noted that even though she was not a frequent Twitter contributor

(because posting was not required), there were “a handful of really avid hashtaggers” in the class. Even though she didn’t keep up with the course discussion very frequently, when she did log on, all she had to do was “follow the hashtag” to catch up and to filter out class discussion from her main Twitter feed. Lists (as on Facebook and Twitter) and circles (as on Google Plus) similarly allow for incoming filtering.

Similarly, while a multi-stream aggregator as a technical object was recognized by Ms. Littleton as something that was needed when using various online media for a class. While she did not mention any of the aforementioned third-party apps, she lamented, that the students get “really really annoyed when they have to go anywhere besides Blackboard to get information on or do something. And that’s just what I have experienced myself not just with Syracuse but with other classes.” She further expressed her frustration in that students had shown interest in trying out Google Plus, but then didn’t want to have to go on to yet another platform for the class. When asked if she had any inclination as to why this might be, Ms. Littleton ventured:

I don't other than that everyone is busy and they want everything in one place. They don't want to have to have to take more time than it has to. Kind of idea that they want everything to come to them. They don't want to have to go out to it. And, I, I've never been that way. I've always been in 5 different places at once. So I just will have a couple of different tabs open and I always set up the subscribe feature in Blackboard so that I get the email alerts which is a huge help and it saves so much time and I try to show, or try to tell them that they have that feature. And even with that they were, we ended up not doing the whole G+ conversation in innovation because the majority did not like having to go outside of Blackboard, even the Google spreadsheet they don't like... It may be just, I don't know. Its been not just Syracuse, I

also teach for Drexel and I've taught for SUNYIT. And it just seems that everyone wants it in one place if they have to do it.

A recurrent point of annoyance noted, specifically related to incoming information outside of the classroom, was that students had to check in on Blackboard or other media multiple times per week to see if someone had responded to their posts, or made new posts that they had to respond to. Uma, who took Ms. Littleton's class but was matriculated at a different university, noted that a functionality of the LMS at her home institution was that, "every time somebody posts something, a question or comment on the learning space, you receive an email so you know what's going on." She lamented, "you don't have that announcement so to speak with Blackboard. So I have to remind myself to go in and keep reading and see if anyone's gone in."

Based on this and related comments made by additional students, an additional technical object emerged as relevant that could be classified as an incoming stream of information. **Notifications** can be considered a technical object within a given medium that provides the functional affordance of alerting students, in real time, when an information is available. Notifications might range in form from email, to an on-screen icon that lights up when new activity is available to view (such as in Facebook or Twitter), to a pop-up on one's cell phone. For example, Ramona was a heavy social media user and explained "it is helpful that on my phone I get notifications so I know when someone specifically said something to me that I need to maybe respond to."

4.7.3 MULTIMEDIA ENGAGEMENT THROUGH SOCIAL MEDIA

“Being able to have everyone post a picture and put a name to the face and things like that, I think it is important to get some sense of that” Grace opined. “That’s obviously the part that is missing when you are taking all online classes. So any effort at that is good.”

She was speaking to another theme that arose throughout my interviews, specifically as related to distance-based classes. Ethan, quoted in a subsection above, had made a similar observation; that being able to see a long-term history, including pictures, gave him a better sense of who they are. Seeing pictures from other students’ lives (such as their kids or places they live or visit) also helps to reinforce that they are real people when it comes to more intellectual types of interaction. For example, Suzy explained:

Okay so Twitter curation, okay, profile picture - attractive. The one on Facebook is more family oriented. Because my sister, I mostly use Facebook for keeping in touch with family and sharing photos, and staying in touch with friends and colleagues for the Facebook Library Group. And posting random stuff. So that is a family photo-oriented one. The one on Twitter is more professionally acceptable. It is like “hey I am an engaging interesting person who - here is my close-up me wearing a cowboy hat, know what I mean. That is more of an individual could lead to professional kind of thing.”

This suggests that **Embedded Multimedia** are a technical object (feature) within a given medium that provides the functional affordance for students to send or receive information that contains some form of multimedia beyond text (i.e., audio, images, and video). Ms. Myrtle in particular expressed that as an instructor, she found it important to post videos of herself speaking nearly every week so that students would recognize that she was more than just a written word.

4.7.4 SUMMARY OF AFFORDANCES AND TECHNICAL OBJECTS OUT OF THE CLASSROOM

Table 23 provides a summary of the functional affordances and corresponding technical objects related to social media outside of the classroom with examples.

Table 23: Functional Affordances and Technical Objects out of the Classroom

AFFORDANCE CATEGORY	SPECIFIC OUT-OF-CLASS AFFORDANCE	TECHNICAL OBJECT	TECHNICAL OBJECT EXAMPLES
Timeliness	Immediacy	Parsimonious Communication Tools	<ul style="list-style-type: none"> • 140-Character Tweet Limit • “Like” Tool • Post Rating (Number of Stars)
		Liberal Communication Tools	<ul style="list-style-type: none"> • Open-Ended Character Limit for posts or comments
	Permanence	Backlogs	<ul style="list-style-type: none"> • Twitter Feed • Facebook Timeline • Facebook Photo Album • Blog Archive
Information Curation	Directing Outgoing Information Streams	Dissemination Filters	<ul style="list-style-type: none"> • Hashtag • Lists/Circles • Account Privacy
		Identity Management	<ul style="list-style-type: none"> • Multiple Accounts
	Filtering Incoming Information Streams	Single-Stream Filter	<ul style="list-style-type: none"> • Hashtag • Lists/Circles
		Multi-Stream Aggregator	<ul style="list-style-type: none"> • HootSuite • TweetDeck
		Notifications	<ul style="list-style-type: none"> • Highlighted Icon • Icon Badge • Smartphone Banner • Email
Multimedia Engagement	Embedded Multimedia	Multimedia	<ul style="list-style-type: none"> • Image • Video • Audio

4.8 SUMMARY OF FINDINGS

This chapter provided the main findings of the case studies investigated for this dissertation. RQ1 and RQ2 were concerned with the use and impact of social media in blended and online contexts, reporting on these via indicators of the CoI framework to understand the value these media provided. Social presence was found to be most salient (84.8%) in the blended course context, followed by cognitive presence (23.9%) and teaching presence (18.5%). Within the distance context, blogs were found to engender largely cognitive presence (74.4%) and social presence (62.2%). Social networking sites were largely indicative of social presence (73.2%) but did show evidence of cognitive presence (44.6%). Twitter, as a social medium in the distance-based course setting, evidenced both a high salience of social presence (73.6%) and cognitive presence (71.8%). Teaching presence across all media in the distance context was relatively low in blogs (16.7%), social networking sites (28.6%), and Twitter (9.1%).

The other two research questions posed in this work were concerned with the design affordances of social media within the classroom (RQ3) and outside of the classroom (RQ4). The functional affordances of immediacy, permanence, directing outgoing information streams, and filtering incoming information streams were pertinent to all contexts, while embedded multimedia emerged as pertinent largely to the distance context. Despite similar functional affordances displaying relevance for students across contexts, there were distinct technical objects related to these affordances that differed between contexts. For example, liberal communication tools, identity management tools, and notifications were not found to be particularly related to the blended course context, but were identified as

relevant to the distance context. Chapter 5 addresses the implications of the finds reported on in this chapter.

5. CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

5.1 CLOSING VIGNETTE

It was a few days following the RILS class session described in Section 1.1, and I was reviewing tweets that had been sent by class members since they last met by filtering messages out that used the hashtag #rils. While the conversation was not nearly as lively and varied as that which occurred during the session I visited; one topic that maintained various class members' interest was the physical layout and aesthetics of public libraries. This extended beyond a discussion that had begun in class, continuing to be revisited over the days that followed. While the instructor, Ms. Jackman, had limited ability to interact with students when the class was actually in session, she was able to actively participate outside of the classroom. The following is a collection of some of the tweets that addressed this topic.

(Two days after class)

- Ms. Jackson @RILSInstructor: Does signage at a library's entrance about security and safety give new patrons the right impression? Is it welcoming? #RILS

(Three days after class)

- Ms. Jackson @RILSInstructor: If 2 diff LIS students cannot agree about whether signage in a library is appropriate, imagine what library patrons think! #RILS
- Ms. Jackson @RILSInstructor: Without you knowing it, a grocery stores layout will encourage you to move thorough the store in a specific way. #RILS
- Ms. Jackson @RILSInstructor: Should LIS students read books on how grocery stores are designed? Those layouts are meant to give you a specific experience. #RILS

- RILSStudent1 @MSLISStudent1: @RILSInstructor you've got me intrigued; going to do some more digging. I'll share anything i find! laundry is calling my name now! ;-)
#RILS
- RILSStudent1 @MSLISStudent1: @MSLISStudent4 @RILSInstructor we're doing a lot of reorganization to make better use of open spaces. Wanna look at non-library orgs for ideas. #RILS
- Ms. Jackson @RILSInstructor: @MSLISStudent3 stores and amusement parks spend a lot of money on designing spaces that work. We could learn a lot from them. #RILS
- RILSStudent 3 @MSLISStudent3: I was always befuddled why more librarians weren't interested in that. Also worth studying: Disney park design. #RILS
- RILSStudent2 @MSLISStudent2: @RILSInstructor I do think so entirely. In my current collection development course, we're giving close study to bookstore design. #RILS
- Ms. Jackson @RILSInstructor: @MSLISStudent3 @MSLISStudent5 it would be interesting to create a lib where everything is movable & then ask the community to arrange it! #RILS
- Ms. Jackson @RILSInstructor: @MSLISStudent6 @MSLISStudent7 I can wander thru Staples for hours! From what students observed, some libs aren't that "inviting".
#RILS

(Four days after class)

- RILStudent8 @MSLISStudent8: The staff at the Morgan Library are marvelous, super helpful and know their collection very well #RILS #OTHERMSLISCLASS
- RILSStudent8 @MSLISStudent8: It's like stepping into another world or more like stepping in the early middle ages - Morgan Library #RILS
- RILSStudent9 @MSLISStudent9: @MSLISStudent8 So glad you enjoy The Morgan! Love, love, love it. #RILS

(Five days after class)

- Ms. Jackson @RILSInstructor: Follow-up to Saturday's Twitter convo - The Importance of Physical Space, <http://ow.ly/fA0xx> Comments welcome! #RILS

Regarding the above tweets, the names have been changed for the sake of anonymity. These are presented in a form similar to those that one would actually find on Twitter. First is the user's name (e.g., RILSStudent1), followed by their Twitter handle (@MSLISStudent1).

When used after the colon, a Twitter handle connotes who the message is being directed toward, and sends that user a notification that they were mentioned in a tweet.

Reading these messages demonstrated that all three types of presence established in the CoI framework were present in discussions about the course which occurred outside of the classroom. For example, Ms. Jackson wrote, "stores and amusement parks spend a lot of money on designing spaces that work. We could learn a lot from them," which is an example of teaching presence within the category of direct instruction (per the indicator of offering illustrations). RILSStudent 3 wrote, "I was always befuddled why more librarians weren't interested in that," which is an example of cognitive presence within the category of triggering event (per the indicator of sense of puzzlement). Social presence was also quite notable in the discussions above. Per the nature of communication via Twitter, any time a message was directed toward another class member, one could identify an example of group cohesion per the vocatives indicator. A more specific example would be RILSStudent9 who wrote "@MSLISStudent8 So glad you enjoy The Morgan! Love, love, love it," which further demonstrated social presence within the categories of open communication (per the indicator of referring directly to others' messages) and personal communication (per the indicator of affective expressions)

One might argue that engaging with Twitter as a community of inquiry caused a moment of interruption in class when Rachel's tweet caused another student to have an unexpected outburst of laughter (Section 1.1). However, the tweets reprinted in this section indicate the continuance and maintenance of the community of inquiry outside of the classroom. That is to say, both the "interruption" and extended discussions are prime examples of how social media may be changing the way that discourse happens in higher education. The remainder of this chapter will address that very theme, with the following section providing an overview on the rest of the chapter.

5.2 OVERVIEW OF DISCUSSION AND IMPLICATIONS

The case studies that were presented in this dissertation are first and foremost Human-Computer Interaction (HCI) research. Benbasat (2010) explains that worthwhile HCI research should ideally contribute to practitioners' understanding in respect to design. The research described here has both theoretical contributions, and contributions that may be beneficial to practitioners. Therefore, this chapter is largely centered around the implications of this work.

To understand the practical implications of this research, analysis of my findings allowed me to link the use and impact research questions (RQ1 and RQ2) with the design-related questions (RQ3 and RQ4). That is, aggregating my the results of my deductive and inductive analysis allows for a holistic picture that provides both the functional affordances and symbolic expressions for each identified technical object. This addresses the overarching phenomenon of interest posed at the beginning of this document: *how the educational experiences of students in distance-based online and blended higher-education courses are*

affected when social media are incorporated into course activities. Describing how particular technical objects impact different aspects of communities of inquiry on account of specific functional affordances, and in relation to CoI-oriented symbolic expressions; should serve to provide educators (ideally in higher-education) with insight as to how particular types of social media may impact their students' educational experiences. This may also serve as guidance for designers of social (or other) media intended to be used by communities of inquiry.

At the end of this chapter, theoretical implications of this work are also discussed, as well as the limitations of this dissertation, and possible future directions for research.

Table 24: Summary of Salience in Blended Course Context

BLENDED PRESENCES	SALIENCES (N=243)*	BLENDED PRESENCE CATEGORIES	CATEGORY SALIENCES**
Cognitive	23.9%	Triggering Event	3.7%
		Exploration	19.8%
		Integration	0.4%
		Resolution	0%
Teaching	18.5%	Design and Organization	2.5%
		Facilitating Discourse	6.2%
		Direct Instruction	11.9%
Social	84.8%	Interpersonal Communication	58.4%
		Open Communication	48.1%
		Group Cohesion	67.4%

*There were 243 units of meaning (tweets) analyzed in the blended course context

**Category salience sums may exceed presence salience percentages as a given unit of meaning may exhibit multiple indicators of a given blended presence

Table 25: Summary of Salience in Distance Course Context

DISTANCE PRESENCES	SALIENCES (N=489)*				DISTANCE PRESENCE CATEGORIES	CATEGORY SALIENCES**			
	BB (n=167)	Blog (n=156)	SNS (n=56)	Twitter (n=110)		BB	Blog	SNS	Twitter
Cognitive	62.9%	74.4%	44.6%	71.8%	Triggering Event	10.8%	14.7%	7.1%	11.8%
					Exploration	38.3%	53.8%	42.9%	65.5%
					Integration	24%	17.9%	1.8%	1.8%
					Resolution	1.8%	4.5%	0%	0%
Teaching	26.9%	16.7%	28.6%	9.1%	Design & Organization	9.6%	0.6%	0%	1.8%
					Facilitating Discourse	19.2%	16%	5.4%	4.5%
					Direct Instruction	6%	2.6%	26.8%	3.6%
Social	76.6%	62.2%	73.2%	73.6%	Interpersonal Comm	50.3%	49.4%	55.4%	45.5%
					Open Comm	32.9%	27.6%	28.6%	30%
					Group Cohesion	31.1%	17.9%	28.6%	50.9%

*A total of 489 units of meaning were analyzed in the distance context

**Category salience sums may exceed presence salience percentages as a given unit of meaning may exhibit multiple indicators of a given distance presence

Tables 24 and 25 provide a summary overview of the results presented in the previous chapter regarding the salience of the three types of presence that comprise the Community of Inquiry (CoI) framework within the blended and online contexts respectively, as well as a breakdown of the categorical saliences within each type of presence. An even more detailed breakdown providing the saliences of the individual indicators (codes) within each category is provided in Appendix III.

These tables should serve as reference for the reader over the next three subsections.

Table 26: Summary of Functional Affordances and Technical Objects

AFFORDANCE CATEGORY	FUNCTIONAL AFFORDANCE	TECHNICAL OBJECT	IN-CLASSROOM EXAMPLES	OUT-OF-CLASSROOM EXAMPLES
Timeliness	Immediacy	Parsimonious Communication Tools	<ul style="list-style-type: none"> • 140-Character Tweet Limit 	<ul style="list-style-type: none"> • 140-Character Tweet Limit • "Like" Tool • Embedded Links • Post Rating (Number of Stars)
		Liberal Communication Tools	N/A	<ul style="list-style-type: none"> • Open-Ended Character Limit for posts or comments
	Permanence	Backlogs	<ul style="list-style-type: none"> • Twitter Feed 	<ul style="list-style-type: none"> • Twitter Feed • Facebook Timeline • Facebook Photo Album • Blog Archive
Information Curation	Directing Outgoing Information Streams	Dissemination Filters	<ul style="list-style-type: none"> • Hashtag • Account Privacy 	<ul style="list-style-type: none"> • Hashtag • Lists/Circles • Account Privacy
		Identity Management	N/A	<ul style="list-style-type: none"> • Multiple Accounts
	Filtering Incoming Information Streams	Single-Stream Filter	<ul style="list-style-type: none"> • Hashtag • Twitter Lists 	<ul style="list-style-type: none"> • Hashtag • Lists/Circles
		Multi-Stream Aggregator	<ul style="list-style-type: none"> • HootSuite • TweetDeck 	<ul style="list-style-type: none"> • HootSuite • TweetDeck
		Notifications	N/A	<ul style="list-style-type: none"> • Highlighted Icon • Icon Badge • Smartphone Banner • Email
Multimedia Engagement	Embedded Multimedia	Multimedia	N/A	<ul style="list-style-type: none"> • Image • Video • Audio

As a compliment to these, Table 26 is presented here as a further reference, summarizing the technical objects and functional affordances identified by students as relevant inside and outside of the classroom.

Next in this chapter, symbolic expressions are delineated into three separate subsections that address cognitive presence, teaching presence, and social presence. As these each address the categorical indicators for each type of presence, I have chosen to favor the term “presence” in discussing the symbolic expressions that technical objects has for users. This maintains a sense of consistency with the CoI framework and extant literature.

These subsections will also maintain a sense of consistency with the AST framework and my conceptual model (Figure 9). Accordingly, it is important to reemphasize that there is not a relationship between functional affordances and symbolic expressions. Markus and Silver (2008) were clear that while functional affordances and symbolic expressions are interwoven, their connection to each other comes in the form of technical objects and a given user group. As quoted by these scholars previously in this document, a technical object “may have many different symbolic expressions for a specified user group, just as it may have many functional affordances” (pp. 623-624). Because a given functional affordance may have been identified that covers multiple technical objects, and as those technical objects might address different categories of a given presence, the results in the next few sections are organized accordingly.

5.3 COGNITIVE PRESENCE AND SOCIAL MEDIA DESIGN IMPLICATIONS

5.3.1 DISCUSSION ABOUT COGNITIVE PRESENCE

The connection between RQs 1 and 2 and RQs 3 and 4 are most clearly bridged by the concept of functional affordances in Adaptive Structuration Theory (AST). As functional affordances represent possible goal-driven actions that a specified user (or group) are afforded by a technical object (Markus & Silver, 2008), these can most clearly be tied

directly into educational experience. In this research, students who form a community of inquiry are the specified user group, with their action goal being computer-mediated discourse with other members of the community. Therefore, the nature of discourse (presence) from student to technical object (and then to other students) is a product of functional affordances between technical objects (social media and their constituent features) and students.

The salience of cognitive presence varied distinctly between the blended and online contexts. Within the blended context, cognitive presence relatively low, indicated in 23.9% of tweets. However, cognitive presence was considerably more visible in the distance courses, salient at 74.4% for blogs, 44.6% for social networking sites, and 71.8% in Twitter. There are two distinct possibilities as to why this might be. First, the students who comprise the communities of inquiry might be very different themselves. Second, and more plausible, based on my interviews and digital artifacts collected from these contexts; is how students were instructed to use these media.

As shown in Figure 3 and described in Chapter 2, each type of presence overlaps. This means there is a relationship between social and teaching presence, social and cognitive presence, and cognitive and teaching presence. For example, a strong level of teaching presence was found to have a close connection with high-level cognitive presence (D. R. Garrison & Cleveland-Innes, 2005).

To be clear, while teaching presence was found to have the lowest salience within every medium across both contexts, this does not mean there was not clear instruction and direction from the professor. Presence is a construct intended to capture the essence of

computer-mediated discussions. In the blended course, I observed that much of the instruction and direction done by Ms. Jackman happened during the class sessions. Similarly, within the distance courses, the instructors used the learning management system, Blackboard, to communicate many of the expectations and learning materials. These took the forms of instructor-created modules, slideshows, announcements, and the like. The data that were collected, analyzed, and reported on here are indicative only of the discussion forums where the entire community could interact, as is consistent with the CoI framework.

With both of the distance classes, the nature of the course content had an emphasis on gaining experience using social media. Accordingly, the instructors encouraged their use as discussion platforms in addition to the “official” discussions on Blackboard. Therefore, it is not surprising to see high levels of cognitive presence across various media within the online context. Triggering events, which Garrison et al. (2001) observed to typically have a lower frequencies than exploration and integration, they attributed to the fact that issues are often framed for students by the instructor, meaning they express less curiosity, and identify fewer problems themselves. This was consistent in the research presented here as well.

Across all media in the distance course, the cognitive presence category of exploration was most salient, as this represents students testing out ideas and concepts through indicators that evidence understanding the nature of intellectual problems and the search for relevant information and possible explanation. On blogs, exploration was salient in 53.8% of paragraphs, social networking sites evidenced 42.9%, and 65.5% of tweets indicated this

category. Referring back to the work of Garrison and colleagues, this is fairly consistent with previous findings. In a study of online discussion boards, Garrison et al. (2001) reported that exploration was the often the most frequently identified category of cognitive presence, with resolution typically being the least identified (as is also consistent with my findings).

It is additionally interesting to note that the indicator of *information exchange*, was the single most salient cognitive presence code across all media (26.9% on blogs, 32.1% on social networking sites, and 45.5% on Twitter). Information exchange is in the exploration category, characterized by the sharing information; such as rehashing learning materials without building off of them, or sharing links to outside materials without substantive commentary. Even in the blended course where cognitive presence was comparatively less salient (23.9%), information exchange was still most salient (indicated in 15.2% of tweets).

My findings on integration, where students express critical reflection and synthesis of information, are less consistent with those previously reported. Indicators of integration were found by Garrison et al. (2001) as occurring in 13% of messages in one study.

Meanwhile, a later study by Akyol and Garrison (2011) found integration occurring in about 50% of messages in both an online and a blended course. In my case studies, integration had a 17.9% salience on blogs, but only a 1.8% salience on social networking sites and Twitter in the distance-based courses. In the blended course, it was salient at only .4%.

My findings regarding the cognitive presence category of resolution were consistent in regard to prior studies in that it was infrequently evidenced throughout the data analyzed,

appearing in somewhere around 4-10% of messages (Akyol & Garrison, 2011; D. R. Garrison et al., 2001). In fact, resolution was only found in blog posts with a 4.5% salience.

A study that examined both distance and blended course formats reported:

The instructor also emphasized the role of learning activities. He said 'if you do not have the activities that are directed to push students intentionally through four phases of inquiry model, learning does not happen'. He stated that activities were designed to move students through the phases of practical inquiry, ultimately to take them through redesign process, force them to make decisions and apply what they were learning in the class (Akyol & Garrison, 2011, p. 242).

This passage again calls attention to the overlap between teaching and cognitive presences. Whether or not one agrees with this assessment, and whether or not teaching presence was a determining factor in my research; there is a case to be made that the salience of cognitive presence categories expressed by students can be influenced by the characteristics of a given medium. The next subsection explores this connection.

5.3.2 TECHNICAL OBJECTS AND IMPACT ON COGNITIVE PRESENCE

“Who really reads full blog posts? People mostly skim, they skim, they don’t read,” Suzy Taylor opined. She was speaking to the concern that the long lengths which were typical of blog posts, coupled having approximately 30 colleagues in a class, meant that there was simply not enough time to read and comment on everyone’s posts.

Emma Rhinheart expressed similar insight in regard to the discussion boards on Blackboard, as those also tended to be longish in length. Emma was an on-campus student during the first half of her course work, and a distance student the second half. Drawing on

both of these experiences, she asserted, “I did value being in the class in person almost more than online because it is difficult to read everyone’s discussion posts when you are online.” She noted that Information Technologies in Educational Organizations (IITEO) was an exception due to its small class size (5 or 6 students), but in general, “if you have a class of 20 and you’re reading 19 posts, and post maybe twice a week, thats a lot! It adds up if you’re a full time student you have like other classes that you are trying to read for.”

The amount of time put into reading and commenting on blogs contrasted most starkly with that of Twitter. Numerous students commented on how the 140-character limit of Twitter made it easy to review and compose messages. However, many observed that this carried with it a clear trade-off in terms of the ability to have deep intellectual discourse. “Twitter can be great in terms of shortening reading time,” Emma observed. “But in terms of quality, the, the deeper connections, its tricky. It really depends on what the purpose of using Twitter is. Because you only get 140 characters.”

Suzy expressed similar observations about the use of Twitter for her classes, stating that the intellectual discourse was usually superficial. She attributed this to the nature of the medium, explaining, “if you are in person, you can kind of hold the other person accountable to respond to you. You know, it is like a social cue. You can’t just respond with silence, that will not work. You have to continue the conversation. And here you can just stop.” Therefore, Suzy concluded that, “at a very surface level we just like talk like ‘have you guys gotten the books yet?’ Like, that sort of thing. But having like a deep conversation, it is much better in person.”

Emma and Suzy's assessment emphasize that parsimonious communication tools (PCTs) like the 140-character limit on Twitter, do not allow for intellectual depth to occur in discussions. This serves as an explanation as to why most of the cognitive presence categories that were evidenced on Twitter in this study were indicative of lower-level intellectual discourse. On this point, Grace Johnston pointed out that she found Twitter primarily useful as a tool for sharing links. Grace stated that in IITEO, Twitter's character limitation permitted, "less of a conversation and back and forth, and more of like, 'this is neat' and somebody would write back and be like 'yah that's great'. But its not like that opens up a whole Twitter discussion." Indeed, as noted above, information exchange (within the exploration category) was the most salient indicator in cognitive presence on Twitter in both the distance and blended contexts.

Renee ventured that the "less formal" and speedy nature of Twitter allowed her to explore intellectual content in a way she felt was considerably less intimidating than a medium which required more thought and reflection, such as blogging. She said, "I am just getting involved in the program right now, and to have everyone be able to read (my blogs) is super intimidating. But if I have a little tweet, I am learning about workspaces and I think this is cool, and maybe I missed the mark, and its not a workspace or a feature interesting in library science, it just gets passed over instead of annihilated."

Meanwhile, liberal communication tools (LCTs) which do not impose tight content restrictions, were generally spoken of as encouraging deeper levels of cognitive presence. Ramona opined that when discussing scholarly matters, "blogging is an easier format for that because it is longer." She continued, "Tweets are so short that it is hard to have a really

in-depth conversation via Twitter. So it does tend to be a little shallower because you cannot quite develop things all the way in 140 characters.” Similarly, Suzy recognized that “for a good conversation you need more characters.”

Integration and resolution were far more salient in blogs (and even on Blackboard) than Twitter, which could be at least in part attributable to not having a strict character limitation. This is in line with Garrison et al.’s (2001) observation that “integration requires time for reflection to synthesize information” (p. 20).

Another technical object which some students reported as having an impact on cognitive presence, was backlogs. Ethan Cornline recalled that being able to refer back to his Twitter feed allowed him to remember what was discussed in class, and thus freeing him from having to take notes. While not speaking about social media per se, Grace had a complaint about the functionality of Blackboard that helps to emphasize how backlogs might contribute to cognitive presence. She stated:

I wish that what would remain available is previous semesters of Blackboard classes. I don't know after how many classes, but I know after a few semesters in it is like archived and you can't get back to it anymore. So, since I didn't realize that at first, I've been trying to say oh this is important, let me email it to myself cuz I know eventually I'll not be able to get back to it and find it. I sort of wished I had known that before. Sort of the opposite of people being concerned about things being available out there forever.

Grace was commenting on Ari Locke’s fierce dislike of social media due to her perceived permanence of the personal information posted to it. It was not clear, based on these discussions, which particular categories of cognitive presence that backlogs might have an impact on. However, as both Grace and Ethan had indicated that the permanence afforded

by backlogs could be useful to them in the future, it is quite possible that this would allow them the time to reflect and synthesize this information, and thus facilitate higher levels of cognitive presence.

Incoming filters for information was another major theme that students spoke about in relation to their impact on the intellectual nature of the course. In reviewing an earlier draft on my dissertation, Ramona commented that “I think the one thing you didn’t mention was the feeling of how overwhelming it can be.” She was referring to the idea of having to use many different social media for a particular class. Uma echoed this in reporting that the use of various social media over the semester had led her to want to try tools, such as HootSuite, which allow one to aggregated various social media streams into one place. When questioned why she wanted such a tool, she observed that “we were trying so many different social media, and it is overwhelming. And it is time consuming. And it is easier to, I think, in one place to be able to see it all. Unless there are specific social media that I tend to check all the time”.

Ms. Littleton made an interesting observation on this point:

(My students) wanted to experiment with Google Plus, they wanted to try some different things until it came to me adding it to the course. And they really did not like having to go outside. You can't win. So, I do, I try to do some with the social networks that we talk about. And there's one, there's two students in particular, and interesting they are both WISE students that interact quite a bit with Facebook and Twitter. But, its, its funny they want to do it but when it comes down to it no matter what I try, even if it, even if I make it available in both places or I set it up so there's a feed or you can subscribe, they're really really annoyed when they have to

go anywhere besides Blackboard to get information on or do something. And that's just what I have experienced myself not just with Syracuse but with other classes.

The above statements hit on multi-stream aggregators and notifications as relevant to students interacting within the course. While these may not be specific to cognitive presence, they are indicative of interaction in general, and hence relevant to cognitive presence (and the other two types of presences) in general. Both of these technical objects provide the functional affordance of filtering incoming streams of information for students. Single-Stream filters, as technical objects, were also reported in Chapter 4 to provide this same functional affordance. In particular, the hashtag on Twitter was reported as an object for receiving course-specific information within the medium. The hashtag also acted as a dissemination filter to share course-specific information. For example, Renee commented that “without the class hashtag, it may be that a person is just musing to themselves, where people just don’t want to put out their full opinion to the class. I wonder if this is something we should be talking about it.” Although this would provide the impression that use of the hashtag would lend itself to deeper levels of cognitive presence, the data clearly did not backup that proposition (likely due to the 140-character limitation being an LCT). Table 27 below provides a summary of the technical objects discussed in this section that impact cognitive presence and its constituent categories.

For those technical objects within the distance context which seem to generally impact cognitive presence as a whole, this is noted rather than listing all four of the categories. As Twitter was the singular social medium used within the classroom in the blended context, and as exploration was clearly the most salient category (with 19.8%, and the second

closest at only 3.7%), this is the only category than any impact can be safely attributable to based on this study.

Table 27: Social Media Design and Cognitive Presence Impact

AFFORDANCE CATEGORY	FUNCTIONAL AFFORDANCE	TECHNICAL OBJECT	IN-CLASS COGNITIVE PRESENCE IMPACT	OUT-OF-CLASS COGNITIVE PRESENCE IMPACT
Timeliness	Immediacy	Parsimonious Communication Tools	• <i>Exploration</i>	• <i>Triggering Event</i> • <i>Exploration</i>
		Liberal Communication Tools	N/A	• <i>Integration</i> • <i>Resolution</i>
	Permanence	Backlogs	• <i>Exploration</i>	• <i>Integration</i> • <i>Resolution</i>
Information Curation	Directing Outgoing Information Streams	Dissemination Filters	• <i>Exploration</i>	• Cognitive Presence (general)
	Filtering Incoming Information Streams	Single-Stream Filter	• <i>Exploration</i>	• Cognitive Presence (general)
		Multi-Stream Aggregator	• <i>Exploration</i>	• Cognitive Presence (general)
		Notifications	N/A	• Cognitive Presence (general)

5.4 TEACHING PRESENCE AND SOCIAL MEDIA DESIGN IMPLICATIONS

5.4.1 DISCUSSION ABOUT TEACHING PRESENCE

Before going too deeply into a discussion about the teaching presence findings in this research, it is important to note that the salience of teaching presence reported in Chapter 4 was calculated in the same manner as salience for cognitive and social presences. That is, but dividing the instances of teaching presence that were coded (at either the presence type level, category level, or individual indicator level) by the total number of units of meaning that had been coded within a given media. Consequently, my findings of teaching presence

are positioned as such that they show its salience in relation to all of the communication within a medium.

Although it has been recognized that students may exhibit teaching presence based on what experiences they bring into discussions, it is most explicitly clear through instructors' interactions (T. Anderson et al., 2001; D. R. Garrison, 2011). Accordingly, findings on teaching presence are often reported on based solely on instructor's messages (e.g., T. Anderson et al., 2001; P. Shea, Vickers, & Hayes, 2010).

Tables 28 and 29 provide saliences of teaching presence in relation to only instructor posts. Overall salience in relation to all posts is also listed as reference. For example, direct instruction was identified in 64.4% of tweets sent by an instructor in the blended context, but 11.9% of all tweets that were analyzed (from students and instructors) in this context. Accordingly, the totals for instructor saliences are denoted at 100% because only instructor data was considered in the corresponding columns.

Table 28: Instructor Teaching Presence Overview for Blended Course

BLENDED TEACHING PRESENCE	INSTRUCTOR SALIENCE (N=45)*	OVERALL SALIENCE (N=243)**
Design and Organization	13.3%	2.5%
Facilitating Discourse	33.3%	6.2%
Direct Instruction	64.4%	11.9%
Total Teaching Presence***	100%	18.5%

*Instructors contributed 45 out of the 249 units of meaning analyzed in the blended context

**Comparison of blended teaching presence salience in blended community of inquiry as a whole

***Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of teaching presence

Table 29: Instructor Teaching Presence Overview for Online Courses

DISTANCE TEACHING PRESENCE	INSTRUCTOR SALIENCES (N=97)*				OVERALL SALIENCES (N=489)**			
	BB (n=45)	Blog (n=26)	SNS (n=16)	Twitter (n=10)	BB (n=167)	Blog (n=156)	SNS (n=56)	Twitter (n=110)
Design and Organization	35.6%	3.8%	0%	20%	9.6%	0.6%	0%	1.8%
Facilitating Discourse	71.1%	96.2%	18.8%	50%	19.2%	16%	5.4%	4.5%
Direct Instruction	22.2%	15.4%	93.8%	40%	6%	2.6%	26.8%	3.6%
Total Teaching Presence***	100%	100%	100%	100%	26.9%	16.7%	28.6%	9.1%

*Instructors contributed 97 out of the 489 units of meaning analyzed in the distance context

**Comparison of distance teaching presence salience in distance community of inquiry as a whole

***Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of teaching presence

It is challenging to say what teaching presence findings are “typically” like because, first of all, findings on teaching presence are not reported on consistently in the CoI literature.

Although it has sometimes been measured via survey instruments (P. J. Shea, Fredericksen, et al., 2003; P. J. Shea et al., 2006; P. J. Shea, Pickett, et al., 2003) content analysis-based studies have sometimes considered teaching presence categories to be mutually exclusive (e.g., P. Shea, Vickers, et al., 2010), while others have reported their findings in such a way that implies the categories are not mutually exclusive (e.g., T. Anderson et al., 2001). My analysis clearly indicated that a given unit of meaning could be demonstrative of multiple types of teaching presences, and so the findings reported on are representative of that.

Another challenge in illustrating a “typical” display of teaching presence with a CoI is that even research conducted by the same researchers, and reported on in the same manner,

highlights the drastic variation that can occur between instructors in different classes. For example, a study by Shea et al. (2010) found that one instructor demonstrated a 56.2% frequency of messages indicative of design and organizations, while another instructor demonstrated a 24.6% frequency. Similarly, Anderson et al. (2001) reported a 43.2% frequency of codes indicative of facilitating discourse in one class, and a frequency of 75.0% in another. Regarding this variation as common, they state “we have observed this phenomenon in a number of online courses” (T. Anderson et al., 2001, p. 13).

It is therefore not terribly useful to compare the findings in this study to previous studies in regard to teaching presence. However, this is not to say that these findings in and of themselves cannot be insightful into the nature of teaching presence as pertains to social media. After all, the courses reported on in this dissertation, and the instructors who taught them, were chosen because of the likelihood that they would use social media for their classes, and that they themselves would be active participants. The subsection below posits some connections between social media qualities and their impact on the categories of teaching presence identified in my findings.

As the distance courses were administered via Blackboard, it is probably not surprising that facilitating discourse was most salient there (71.1%). Indicators of facilitating discourse stress the instructor supporting discussions to further the construction of meaning, that is, cognitive presence. Blackboard evidenced higher-order cognitive presence in the form of the categories of integration and resolution.

However, to focus on social media, blogs had an even higher salience of facilitating discourse (96.2%) than did Blackboard. This should also be unsurprising considering the

highest level category of cognitive presence, resolution, was most salient on blogs. Yet, on social networking sites, facilitating discourse had 18.8% salience, and Twitter had 50.0%. Design and organization, that is, discourse about the course and related matters such as expectations and outcomes, was largely addressed on Blackboard in discussion posts (and elsewhere as in announcements, syllabi, etc.), which is not surprising as, again, the LMS is essentially a virtual classroom for students. A small degree salience was identified on blogs (3.8%) and on Twitter (20.0%). It also bears noting that only 26 units of meaning were coded for teaching presence, and only 10 for Twitter (meaning that 2 out of 10 instructor tweets addressed design and organization). Meanwhile, direct instruction salience was considerably higher on social networking sites (93.8%) and Twitter (40.0%) than on blogs (15.4%). While this may seem curious at first, when further examined in conjunction with the characteristics of the media, the reasons for this become more evident.

5.4.2 TECHNICAL OBJECTS AND IMPACT ON TEACHING PRESENCE

It is useful to drill down into the specific indicators within the category of direct instruction to understand why it is so particularly salient on social networking sites and Twitter.

Indeed, the code *reference to outside materials* accounted for all of the direct instruction found in Twitter (in both the distance and blended contexts), and for nearly all on social networking sites (with 87.5% salience in all instructor paragraphs).

The most plausible explanation for this, has to do with both social networking sites and Twitter being conducive to embedding links quickly and easily. When students share links within a community of inquiry, this is evidence of exploration in the form of information exchange. This was the most salient indicator on social networking sites and Twitter when

cognitive presence was examined. Therefore, it should not be surprising that as PCTs, they have the same impact on teaching presence, but take the form of direct instruction.

Facilitating discourse, which has to do with the instructor prodding students to engage with the intellectual content of the course, was exceptionally salient on blogs. When examined closely, the code *encourage and reinforce contributions* was present in all of these coded units of instructor posts. Furthermore, the code *summarizing discussions* was also salient in 23.1% of the instructor paragraphs. This is likely because that as an LCT, blog comments allowed the instructor sufficient space to recognize student contributions and provide a concise summary of the positive insight students showed in their blog posts.

Within the blended context, facilitating discourse was salient in 33.3% of instructor tweets, but for a very different reason. Another code within this category is *drawing in participants*, which consists of asking for input from students. Twitter's 140-character limit, as a PCT, is conducive to this in that the instructor can quickly post a tweet asking something like, "any thoughts on this?" In this way, PCTs impact facilitating discourse in a blended context while LCTs may impact facilitating discourse in an online context.

Dr. Myrtle noted that with online teaching, she tried "to create experiences which still help give students your presence. The feeling that you are there with them." Although these did not appear as part of the discussions, Dr. Myrtle was known for posting videos in the learning modules, and those in her classes that I spoke to (for the full study as well as some from the pilot study) reported that this really facilitated their engagement as online students. Dr. Myrtle explained, "I'll say hi, welcome to this week. Here's all sorts of things that are going on. Here's what's coming up." She ventured that this "gets attention in a very

quick way, establishes a social presence like I am there for them, and doesn't look like I am just putting up the same thing I put up last year and the year before. That's a reason for my using video".

Multimedia, as a technical object, will be described as contributing to a sense of social presence as Dr. Myrtle indicated. However, she also noted that sharing video afforded a forum for making comments about the course and setting expectations. Therefore, a clear connection that can be made between embedding multimedia and the teaching presence category of design and organization.

Students in this study did express concern about instructors using too many different types of media, and the potential this had for having them miss important messages from the instructor. Ramona explained:

You get really worried that your missing something, and even though Blackboard isn't great about giving you updates and email notifications, you know if you go back there, everything is there. And if I can read through it I can make sure I didn't miss anything. When students ask Ms. Jackman questions on Twitter and she tweets back answers that are, that she expects the whole class to see because it has the hashtag, it is very likely that I didn't see it unless I talk to someone else about it. I may have missed a piece of communication that affects an assignment I am going to turn in and that makes students really nervous. So if there are 10 places I need to check, it becomes more and more likely I am going to miss something.

This suggests that just as notifications are helpful in regard to cognitive presence in general, they could be helpful to ensure that concerns about missing important discourse from the instructor are reduced.

In sum, Table 30 makes it abundantly clear that most of the technical objects that impact teaching presence happens outside of the classroom. This should not come as a surprise as providing direct instruction, facilitating discourse, and discussing design and organizational issues can readily (and arguably more easily happen) in a face-to-face environment.

Table 30: Social Media Design and Teaching Presence Impact

AFFORDANCE CATEGORY	FUNCTIONAL AFFORDANCE	TECHNICAL OBJECT	IN-CLASS TEACHING PRESENCE IMPACT	OUT-OF-CLASS TEACHING PRESENCE IMPACT
Timeliness	Immediacy	Parsimonious Communication Tools	• <i>Facilitating Discourse</i>	• <i>Direct Instruction</i>
		Liberal Communication Tools	N/A	• <i>Facilitating Discourse</i>
Information Curation	Filtering Incoming Information Streams	Notifications	N/A	• Teaching Presence (General)
Multimedia Engagement	Embedded Multimedia	Multimedia	N/A	• Teaching Presence (General)

5.5 SOCIAL PRESENCE AND SOCIAL MEDIA DESIGN IMPLICATIONS

5.5.1 DISCUSSION ABOUT SOCIAL PRESENCE

Research on social presence has varied widely across the literature. It has been ranged from its development as a theoretical concept (e.g., D. R. Garrison et al., 2000; Rourke et al., 2001), its general application to computer-mediated contexts (Rourke et al., 2001), and its relationship to other presences (e.g., Annand, 2011; D. R. Garrison, Cleveland-Innes, et al., 2010). Additionally, work has been done focusing on issues that include its connection to student satisfaction (C. N. Gunawardena & Zittle, 1997), its influence on task participation

and group consensus (Yoo & Alavi, 2001), student perceptions of learning (So & Brush, 2008).

Within this literature, much like the teaching presence literature, there has not really been any assertions as to what a “typical” class could be expected to exhibit in regard to social presence. One of the first and most cited works on social presence, for example, reports on its “density” as a whole concept in a distance setting, rather than breaking it down across categories (Rourke et al., 2001). A recent conference paper by Saude et al. (2012) does report on category densities which, like Rourke et al., they determine by the number of social presence indicators within a discussion, divided by the number of words in the discussion, and then multiplied by 1,000.

Saude et al. (2012) also noted that there does not seem to be a standard for measuring, assessing, or reporting on social presence in the literature. Nevertheless, their work allowed them to report on densities of social presence in a learning portal in Malaysia linking numerous higher-education institutions. Generally speaking, they found low group cohesion (11%), but fairly medium densities of interpersonal communication and open communication (41% and 44% respectively).

Interpersonal communication, in which one shows “personal ‘interest and persistence’ and helps to create a supportive and respectful climate and sense of belonging” (D. R. Garrison, 2011, p. 38), was salient fairly consistently across all media in both contexts of this study. Interestingly, in the blended course, the most salient indicator in this category was *use of humor* (35.4%), but in the distance courses it never reached above 5.4% salience. Based on my interviews with students, I do not believe that humor specifically was attributable to the

characteristics of Twitter. When asked about the jocular nature of class discussions, Ethan ventured:

I just think it is the right mix of people. I think, I think also Ms. Jackman has a lot to do with it. She is a little bit of a - with Dr. Crumbzt, we are all really interested in what's going on. With Dr. Darnell, we are interesting in what's going on, but it is the same thing we've been talking about all semester so we are not talking about it as much anymore. But with Ms. Jackman, it is a cool topic, reference, and she is just the right personality that encourages, that makes us feel okay with, you know, I am paying attention but I am also putting more attention into making fun of whatever is going on.

In relation to the other interpersonal indicators of the blended course, Renee reported that:

Many of us have work. Many of us commute. Many of us don't have the opportunity to talk to each other. And, it is a wonderful chance to joke around, to get to know peoples' personalities. To see what you like about them as a person, but also to see what you like about them professionally if you can get on the same tangent with someone and have an excellent conversation, you want to talk to them more, you want to see where they are going and to see if you can help them or if they can help you. It is, I don't want to make a weird animal analogy, but feeding off of each other. But essentially a symbiotic relationship. And just regardless of that, I know, well, librarians tend to have little quirks to them. They are known for being quirky. And, some of the weird things that we all enjoy or value, it is wonderful to hear so we don't feel so like an oddball. But also besides that, it is nice to have an idea of those little quirks.

The other two indicators of interpersonal communication, *self-disclosure* and *affective expressions*, were more salient in the distance course than any of the other social presence indicators. Based on interviews with students, I believe that there are some qualities of social media that may have influenced this. I will discuss those in the next subsection.

Open communication, which is demonstrative of respectful and reciprocal exchanges between CoI members, was slightly less salient (but consistent) in the distance courses (between 27% and 30% in all social media), but was salient at 48.1% in the blended course. Group cohesion, that is, interaction which demonstrates “a sense of group commitment” (Rourke, et al., 2001, p. 8) was the most salient social presence in the blended course (67.4%), and higher in this context than in any of the media in the distance context. The high salience of both of these categories may be partially explained by the face-to-face component of the blended course, as having a shared in-person community likely helped students to automatically feel as if they are part of the group and can interact openly with their peers. However, there may also be some influence on both of these categories based on design elements of social media.

5.5.2 TECHNICAL OBJECTS AND IMPACT ON SOCIAL PRESENCE

“Even if all of your classes are physical classes, I am sure people are like, looking each other up on Facebook to find out more about what this person is who is in their class,” Grace ventured. “Just the fact that it’s an online class doesn’t mean your privacy is gone whereas it is intact in a physical class.” She was speaking to the nature of some students, such as Ari, expressing concern over what others may or may not know about them if they used social media and friended their classmates. “I understand the concerns,” she continued. “But I think, you know, only allowing actual Facebook friends to see your photos is sort of my, what makes me feel comfortable about it. Maybe if someone uses Twitters for lots of things, and then maybe in class their professors are seeing their Twitter feeds with lots of unrelated things I guess.”

Ethan had also spoken on the topic of what personal information others may be able to glean off of his social media use. “I was especially concerned when I was an undergrad as an education major because you have to, I had to go back and put the highest privacy settings on my (Facebook) account,” he recalled. “I had to clean it so there wasn’t anything that could be - that students can find. They can’t find it. So I think, now, I am aware of it.” He elaborated that his Twitter account was currently closely managed so as not to give away too much personal detail about himself other than that he is a library student at Syracuse University.

Uma had noted on more than one occasion that she had considered creating multiple accounts across various social media as to keep her personal separate from her professional student identity, as she had observed some of her peers do. While she decided it was ultimately too much of a hassle, her thoughts, as well as those shared by Ethan, Ari, and Grace, indicate that directing their outgoing streams of information (who can see what) plays a role in what personal information they are willing to share on social media.

Therefore, there is evidence to support that outside of the classroom, dissemination filters and identity management tools are two technical objects that might have an influence on interpersonal communication inside and outside of the classroom.

Dissemination filters could also, arguably, be attributed to group cohesion. In regard to cognitive presence, a class hashtag, for example, was discussed as a way to target those within the community of inquiry for class-related intellectual discourse. However, there can be a social element to this as well. While Ramona had expressed that within the blended class, students would sometimes not use a hashtag if they were going off topic, they would

also create their own hashtag for matters that were particularly unrelated to class. For example, Renee related to me:

A lot of the students get together outside of class. There is drinking involved. There are parties where there are themes like "christmas bad sweater" and one time they had a champaign night. Nothing super inappropriate but nothing you'd want to talk about under the class hashtag. It would have a separate hashtag like "champaignparty", and the instructor could see this I am sure. But she's more concerned with what'd being said in the classroom.

A key point to make here is that these hashtags were being used *outside* of the classroom for group cohesion, even though this was the blended course. Similarly, as a technical object, a hashtag also has the affordance of being a single stream filter for incoming information. Suzy made a similar observation about the Facebook group that was intended for library students at the university:

There is a lot that goes on there too. As much as we say "this is a space where we can talk about these great intellectual things," very often that does not happen. Especially in the comments. But the nice thing is that the distance students and the physically here students can all contribute to the page...And so, um, so yah, people will post something and then in the comments that follow the conversation will continue.

Renee related that at the beginning of the semester, many of the new students coming into the program asked a lot of questions to those who had more experience, exhibiting comfort with open communication "It was a couple of admins that were students who were involved in reaching out to others," she related, "Usually either through graduate programs or through recruitment that would come in and answer our questions or get professors to answer our questions. And we would all just chat amongst ourselves. And it would be like

‘check out my apartment,’ ‘do you need a place to live,’ ‘where should I go this weekend,’ things like that.”

While the Facebook library student’s group in particular may not have been class-specific, the nature of a group afforded students information curation in the sense that social information could be shared and received by only members of that group. Like the hashtag on Twitter, Facebook groups arguably contribute to a sense of open communication and group cohesion outside of the classroom.

In regard to timeliness and social presence. Renee observed, “I have received one comment on a blog I made. Whereas in tweeting I will get several retweets, I will get several replies and maybe a couple of direct messages. The interaction is a lot stronger on Twitter.”

Reacting to Renee’s observations in her review of my initial finds, Ramona stated:

I can understand (not liking to blog) that student only got one blog comment ever. I can empathize with that. I have never been a diary writer, and so feeling like you’re writing for no audience and nobody is reading it, and doing it for the self gratification for the grade is frustrating. I can see where the social part is important for her, and the social interaction of twitter gives her that feedback. And that kind of interaction and connection, and blogging feels like you’re putting something out there that isn’t being consumer or interacted with.

Accordingly, LCTs such as the non-restrictive character limitation of blogs allow students the freedom to post a lot of self-reflective content, but not much else. Indeed, looking at the saliences of social presence on blogs, interpersonal communication is relatively salient (49.4%) while open communication and group cohesion are considerably less salient (27.6% and 17.9% respectively). This implies that LCTs do, indeed foster social presence in

terms of individuals being able to express a lot about themselves personally (in the form of affective expressions and self-disclosure), but they are not as conducive to social presence as it involves others.

PCTs, on the other hand, could be more conducive to social presence in general. Certainly, within the classroom, students reported that Twitter felt like an almost synchronous backchannel, and consequently there were relatively high levels of social presence. As explained above, the strong use of humor was likely influenced more by the instructor than characteristics of social media. The two most common codes in the blended course were *referring directly to others' messages* and *vocatives* (use of people's names) with 36.2% and 53.1% saliences respectively. The former code is indicative of open communication while the latter of group cohesion. These are possibly explained by a particular technical object of Twitter.

As explained in Chapter 2, the use of the @ sign followed by a user name (with no space, such as @mjsresearcher) directs a tweet at that user. Twitter automatically adds the @ sign when one replies to a classmate's tweet, as a PCT it lends itself to also contributing to the sense of open communication and group cohesion. Group cohesion was also most salient on Twitter for the distance courses (50.9%), with vocatives salient at 30.0%. The code *social sharing*, which was salient at 11.8% was typically indicated by sharing links on Twitter to materials unrelated to the intellectual content of the class. Students had reported that the sense of immediacy fostered by Twitter's character limitation is useful for quickly sending out links. On account of this, in addition to the high salience of vocatives, it would seem that PCTs also contribute to group cohesion outside of class.

From a more general perspective on social presence, Ethan had noted that because one could access a long-term history of others' posts and pictures on Facebook, it helped to provide him with more of an understanding as to his classmate's personalities. Emma commented on this point stating:

As a distance student, especially since you cannot see your classmates...like some professors ask you to put a picture of who you are. Its different seeing a person face to face, but by having Facebook available (and some people don't have Facebook) but for the most part, you can kind of see who they are, and how they interact with other people because, that helps me like if I want to be in a group mate or something. It is a great way for me to see their character. If you are face to face, you can see that easily, but when you're doing distance, it is a little more difficult.

This implies that a backlog as a technical object might contribute to a better understanding of who a classmate is as an individual (interpersonal communication) as well as the types of exchanges that they have with others (open communication).

Both Ethan and Emma also noted in speaking about backlogs, another important contributing element to social presence that is a property of social media, which is multimedia. Suzy, had previous related her mindfulness in choosing an appropriate image for her Twitter profile. She said this image was indicative of trying to convey, "hey I am an engaging interesting person who - here is my close-up me wearing a hat, know what I mean?"

In speaking to a blended course she took that began with a shared blog before students met in person, Suzy explained that to feel connected to those at a distance, "a picture is super helpful. For one of my classes that shares a blog, someone has a picture of a cat with its

arms up. And I'm like, I don't know if you're a woman or a guy or actually in this class." She elaborated:

You want to know who they are in person. You want to know Jeff is Jeff...for me, I don't like, there are people I don't want to be friends with, but I want to be able to approach them if they have a cool idea. You know, and talk to them in person instead of just to someone who is faceless on a blog of cat-faced. I see, some people just want to get through it, but for me it is nice to have some continuity.

One student in the pilot study had commented to me that one thing she wished that Blackboard had was profile images, similar to those found on Twitter and Facebook. This, she posited, would allow for those who interacted in her distance class to feel more like real people. Interaction would be more personal.

While one can obviously see the "realness" of those they interact with in the classroom, it would seem as if multimedia (at least in the form of images) can enhance the sense of social presence at a distance. As Suzy asserted, a picture can convey a sense of personality (as in the one she chose), or a lack of personality (as in the faceless cat person), can impact the interpersonal aspect of a course (what she was disclosing about herself) as well as the open communication aspect of the course (in that knowing she didn't want to interact with the faceless cat person).

Table 31 provides a summary of the technical objects discussed in this section that impact social presence and its constituent categories.

Table 31: Social Media Design and Social Presence Impact

AFFORDANCE CATEGORY	FUNCTIONAL AFFORDANCE	TECHNICAL OBJECT	IN-CLASS SOCIAL PRESENCE IMPACT	OUT-OF-CLASS SOCIAL PRESENCE IMPACT
Timeliness	Immediacy	Parsimonious Communication Tools	<ul style="list-style-type: none"> • <i>Open Communication</i> • <i>Group Cohesion</i> 	• <i>Group Cohesion</i>
		Liberal Communication Tools	N/A	• <i>Interpersonal Communication</i>
	Permanence	Backlogs	N/A	• <i>Interpersonal Communication</i>
Information Curation	Directing Outgoing Information Streams	Dissemination Filters	• Social Presence (general)	• Social Presence (general)
		Identity Management	• <i>Interpersonal Communication</i>	• <i>Interpersonal Communication</i>
	Filtering Incoming Information Streams	Single Stream Filter	• Social Presence (general)	• Social Presence (general)
Multimedia Engagement	Embedded Multimedia	Multimedia	N/A	<ul style="list-style-type: none"> • <i>Interpersonal Communication</i> • <i>Open Communication</i>

5.6 PRACTICAL CONTRIBUTIONS

This study makes a unique contribution to HCI scholarship in that it is the first of its kind that has specifically considered the how the design qualities of social media have had an impact on student discourse. In fact, a survey of the literature of this sub-discipline by Zhang et al. (2009) that covered 1990-2008 reported that only 7 out of nearly 1800 papers analyzed addressed the topic of education. In light of the increasing tendency for higher education to utilize ICTs for learning activities ("Digital Dependence of Today's College Students Revealed in New Study from CourseSmart," 2011; Moran et al., 2011), HCI researchers have a wealth of opportunity to apply their unique expertise within this

domain. This can help to provide insight about how people interact with technologies within educational contexts. This research is a step in that direction.

Table 32: Social Media Design and Impact on Educational Experience

AFFORDANCE CATEGORY	FUNCTIONAL AFFORDANCE	TECHNICAL OBJECT	COGNITIVE PRESENCE	TEACHING PRESENCE	SOCIAL PRESENCE
Timeliness	Immediacy	Parsimonious Communication Tools	<ul style="list-style-type: none"> • <i>Triggering Event (In)</i> • <i>Exploration (Both)</i> 	<ul style="list-style-type: none"> • <i>Facilitating Discourse (In)</i> • <i>Direction Instruction (Out)</i> 	<ul style="list-style-type: none"> • <i>Open Comm (In)</i> • <i>Group Cohesion (Both)</i>
		Liberal Communication Tools	<ul style="list-style-type: none"> • <i>Integration (Out)</i> • <i>Resolution (Out)</i> 	<ul style="list-style-type: none"> • <i>Facilitating Discourse (Out)</i> 	<ul style="list-style-type: none"> • <i>Interpersonal Comm (Out)</i>
	Permanence	Backlogs	<ul style="list-style-type: none"> • <i>Exploration (In)</i> • <i>Integration (Out)</i> • <i>Resolution (Out)</i> 	N/A	<ul style="list-style-type: none"> • <i>Interpersonal Comm (Out)</i>
Information Curation	Directing Outgoing Information Streams	Dissemination Filters	<ul style="list-style-type: none"> • <i>Exploration (In)</i> • General (Out) 	N/A	General (Both)
		Identity Management	N/A	N/A	<ul style="list-style-type: none"> • <i>Interpersonal Communication (Both)</i>
	Filtering Incoming Information Streams	Single Stream Filter	<ul style="list-style-type: none"> • <i>Exploration (In)</i> • General (Out) 	N/A	General (Both)
		Multi-Stream Aggregator	<ul style="list-style-type: none"> • <i>Exploration (In)</i> • General (Out) 	N/A	N/A
		Notifications	General (Out)	General (Out)	N/A
Multimedia Engagement	Embedded Multimedia	Multimedia	N/A	General (Out)	<ul style="list-style-type: none"> • <i>Interpersonal Comm (Out)</i> • <i>Open Comm (Out)</i>

Table 32 summarizes the technical objects and functional affordances identified in these case studies, and the elements of the CoI framework they were found to have a potential impact on. Cognitive, teaching, and social presence each have columns in this table. If the technical object was found to have an impact on a presence type as a whole, this is listed as

“general”, otherwise the category or categories impacted are denoted. The table also distinguishes whether or not that relationship was reported within the classroom, outside of the classroom, or both.

Table 32 can serve as a guide for both educators who are considering appropriating social media in their classrooms, as well as for those who may be designing computer-mediated technologies for educational contexts. Of course, one must be mindful of the limitations of this research (described in Section 5.7) in making practical applications, but this dissertation provides rich detail about the cases and contexts that were investigated as so that the reader may decide for him or herself if these findings are useful to a particular situation.

For example, if an instructor is looking to ensure that a blended course she is teaching has a high-level of social presence, she might want to incorporate Twitter in the classroom because of particular design elements of it. The 140-character limit, as a PCT, has been found to contribute to open communication and group cohesion through facilitating immediacy. The ability to direct outgoing streams of information, and to filter incoming streams of information via hashtags (that act as both a dissemination filter and a single stream filter) has also been found to contribute to social presence in general.

It is important to point out that the above practical implications pertain largely (if not exclusively) to the nature of students’ educational experience bounded within the context of computer-mediated communication. As per the notable interruption of an in-class session due to social media interaction (Section 1.1), an instructor may want to establish both online etiquette and in-class etiquette when social media are used for blended

courses. Furthermore, my findings caution that the use of social media in-class may not be appropriate for all students, situations, contexts, or instructors. Some students reported that they felt such could be distracting if they themselves used them, such as Suzy Taylor (Blended Case Portrait #4); while others such as Ari Locke (Blended Case Portrait #5), expressed that these tools, despite her non-use, were distracting because they changed the way other students interacted in the classroom.

Meanwhile, a designer of an LMS might use Table 32 (and the larger body of this document) to improve upon, or integrate new features that are available to both the instructor and students. For example, providing ways to embed more multimedia could be useful in that it can generally increase teaching presence and the interpersonal and open communication aspects of social presence. Ensuring that an LMS has a mix of PCTs and LCTs could result in students being able to better engage in all four levels of cognitive presence.

5.7 THEORETICAL IMPLICATIONS

The research reported on here also has theoretical implications. As explained above, Garrison (2011) observed that few studies have empirically examined the CoI framework holistically. Rather, most of the research that has been done has focused on a given type of presence (social, cognitive, or teaching). Yet, while the empirical investigations of this framework have largely shown that these three constructs can account for much of the dynamic complexities of online educational transactions, “the challenge for researchers and practitioners is to better understand the interdependence of the three elements,” as “each element influences the others”. (D. R. Garrison & Arbaugh, 2007, p. 166). Furthermore, it has been suggested that in order to further test and refine the framework, studies be

conducted across disciplines and educational contexts (D. R. Garrison, 2011; D. R. Garrison & Arbaugh, 2007). The case studies reported on here are a step in those directions.

The case studies examined in this research examined social media across cognitive, teaching, and social presence. While the aim of this research was not to describe or explain the interrelated nature of these elements within the CoI framework, the practical implications discussed above do show that certain features of social media may impact the whole of the CoI framework. In particular, both LCTs and PCTs were each reported to have distinct influences on all three types of presence, underscoring the role that different media characteristic might play in regard to communities of inquiry inside and outside of the classroom.

Also, the CoI framework was specifically intended to address text-based discussion boards (D. R. Garrison, 2007; D. R. Garrison et al., 2000). To date, scant, if any, research that has used this framework have given much consideration, much less critically analyzed, the communicative properties of multimedia. The results of my data analysis indicate that the richness of a medium (that is, the communication cues that it can carry) do seem to be a salient factor regarding teaching presence and social presence. This research has indicated that if the CoI framework is to be appropriately applied across social media, it must necessarily be expanded to include more than just text-based discourse.

5.8 LIMITATIONS OF STUDY

As with any research, there are limitations that need to be addressed. The first limitation has to do with the nature of ICTs. Case studies are necessarily rooted in a given time and space (Merriam, 2009; Yin, 2009). Therefore, any study bounded by a given ICT (or set of

ICTs) is vulnerable to being outdated as those ICTs evolve or are replaced by new ones. As ICTs, social media has emerged and evolved so quickly that one could be concerned that the findings of this study could be outdated within an alarmingly short period of time.

Just since I started this research, new social media have emerged (or become more popular). Pinterest has become a visual-oriented popular social medium, while Tumblr (which seems to be a cross between an LCT and a PCT) has also increased in use. Micro-video social media such as Vine (which allows for the creation and sharing of very short 4-5 second videos) have emerged, while even social media which were widely used when this study began have changed. For example, Facebook only recently (within the last year or two) replaced profile pages with timelines, while Twitter has added tools to make sharing photos easier, and most recently a music streaming service.

I decided to focus this research on the feature level because this would hopefully expand the duration for which the work here can remain relevant. The findings and implications of this research revolve around general technical objects and their functional affordances because even if the media themselves change, that is, even if their specific technical objects change, disappear, or new ones are added; there is more of a likelihood that the remaining specific technical objects will fall within the domain of the general technical objects identified in this body of work. Therefore by couching my research through understanding social media at the feature level of granularity, the longevity of my findings may be extended.

A second limitation has to do with qualitative case study methodology. In Chapter 3, I discussed techniques that addressed issues of validity and reliability. Still, it is worth noting here that the issue of generalizability can be especially contentious when scholars discuss

the applicability and implications of case study research (Merriam, 2009; Punch, 2005). However, through careful design (Cohen & Manion, 1989) and multiple cases (Creswell, 1998), the generalizability of case study research can be enhanced. The research presented in this document included multiple cases. However, these case studies all fell within the domain of a very particular set of contexts. That is, all were conducted within graduate-level library science courses at one university. This does not mean that the study itself did not exhibit reliability or validity, or that the results are not generalizable. But it does mean that if one is to generalize from it, he or she is advised to read over the whole of this document to decide if it would be applicable for his or her particular endeavor.

Related to this, the research presented here is certainly not a “solution” in that sense that I am hailing social media as a driving force to revolutionize the educational experiences of every single student in higher education. One has to be mindful that some students (e.g., Ari Locke) may simply not take well to social media. The research here is intended to help educators and designers make informed choices by increasing their understanding of how social media may have an impact on the educational experiences of some students. It is, again, up to the reader to determine how applicable the findings and implications are to other contexts.

Finally, this dissertation represents a first attempt by a single researcher at making connections between social media and communities of inquiry through AST. Certainly, future research will be needed to have a richer and more holistic picture of how characteristics of these ICTs will impact students’ educational experiences.

5.9 FUTURE RESEARCH

The research presented in this dissertation was focused on robustly investigating student experience with social media across the MSLIS program and the MSLISSM program at Syracuse University. It is the first of its kind to deeply investigate social media within the lens of the much cited and utilized CoI framework. Therefore, further studies are necessary to develop a richer understanding of the impact of social media on educational experience. Ideally, these should consider different levels of higher education (undergrad and graduate-level students), as well as various disciplines.

While some of this additional research might be qualitative, quantitative methodology might also prove to be very helpful. For example, recent research (e.g., Arbaugh et al., 2008; Swan et al., 2008) has developed survey instruments for measuring presences within communities of inquiry. Quantitative survey studies could be particularly helpful to further articulate which aspects of cognitive, teaching, and social presence are impacted by a given social medium. However, as my research has helped to demonstrate, educational experiences with social media is a highly contextualized phenomenon. Therefore, I would strongly encourage that quantitative methodology be used as a compliment (rather than a substitute) for qualitative methodology.

Although it has been previously reported that students are increasingly expecting social media use in their courses (Scialdone et al., 2011), this study has helped to illustrate that students have very different opinions toward social media and their uses in higher education (as per Section 5.6). This implies that it might be useful to look at individual differences in respect to attitudes and beliefs about social media in relation to students'

willingness to use them for educational or professional purposes. Furthermore, research on individual learning styles and preferences, and the impact of social media features on these, will be important for educators to understand how particular learning activities might be best supported by a given social medium. It may even be helpful to conduct research that focuses on how social media use in-class influences the face-to-face dynamics of physical classroom interaction.

The notion of a community of inquiry, as developed over the last 10+ years by Garrison and his colleagues (e.g., D. R. Garrison, 2007, 2011; D. R. Garrison et al., 2000; D. R. Garrison, Anderson, et al., 2010) appears to take for granted that such a community can be defined by the students and instructors who are part of a single, isolated course. However it may be that communities of inquiry are much more amorphous than that.

Over the course of this research endeavor, I discovered that social media use and impact in the the MSLIS/MSLISSM programs was not neatly confined within the context of students enrolled in a single course and their designated instructor. Students reported on interactions with individuals outside of the program (such as guest speakers) and interactions with other students and instructors who were not “official members” of a given class. Furthermore, messages posted to social media sometimes were intended for to address multiple classes, even though there was variation in who the students in those classes were.

Additional research might be done in conceptualizing different levels of granularity regarding communities of inquiry. Aside from the traditional community of inquiry that is bound by enrolled students and their instructor, it might be time to consider extended communities of inquiry that are defined by core members (enrolled students and their

instructor) and peripheral members (guests, other instructors, etc.). Perhaps even conceptualizing a personal community of inquiry, consisting of the whole of an individual student's interactions across multiple courses and media, would be useful. Studying cognitive presence, teaching presence, and social presence at these differing levels of granularity could yield an additional understanding into the nature of online and blended educational experiences.

APPENDICES

APPENDIX I: PILOT STUDIES

This appendix provides an overview of the pilot cases conducted for this dissertation.

These may help to give the reader a sense of understanding as to the contexts in which the pilot studies were conducted, as well as an idea of the characteristics of the individuals who comprised these studies.

AI.1 BLENDED CLASS: YOUTH SERVICES IN LIBRARIES

These pilot case studies were conducted in-tandem with those described above. The cases chosen for these studies were from the class Youth Services in Libraries and Information Centers (YSLIC). The course was taught online for the duration of July 2012, but had a week-long session following this where students met on-campus for about 8 hours per day. The instructor, Nancy Myrtle (pseudonym) was hoping to have an emphasis on community building during the online portion, and that the week-long face-to-face component would build off of that. Accordingly, the syllabus noted:

This is a blended learning or hybrid course (part online and part face to face). It has a 4 + 4 format. That is, there are four full weeks of online coursework from July 1 - July 31 followed by 4 full days in the on-campus residency from July 30 through August 2. All of your readings, lectures, videos, and background materials will be presented in the online portion of the class and students are responsible for their completion prior to the 4-day residency. This format represents a flipped classroom approach in which students complete the instructional components at home (online) in advance of the residency; during the face-to-face residency, the valuable time together is spent "doing," including sharing, collaborating, presenting, and problem-solving.

About her “flipped classroom” approach, Nancy noted that during the face-to-face portion:

When I was there, I didn't spend all of my time lecturing. I did some, but I had people doing things all the time. But they had gotten a lot of the pre-requisite materials beforehand. And so, we were able to do that and make the most of that time which they need in order to prepare themselves to be educators. Because if they never get a chance to be up and doing things and performing and getting feedback on their performance, then that is difficult in an online program. It is. So I believe very much in making their time in class somewhat exploratory and performance. But those two things, exploring and performing because they need that.

AI.2.1 Alice McCray

I was only able to interview Alice once, but she made a particularly interesting case study as she was taking both this blended class (YSLIC) and the distance-based class described above (SNL) at the same time. Therefore, I was able to talk to her about her experience with both courses. The Summer represented Alice's last term in the Masters program. She began our interview joking that “they really should not allow you to graduate with 6 credits left! I don't really want to do anything, and I got a job. I don't really feel like doing anything”. Just a few days before our interview, she had been offered a job as an elementary school librarian, and she accepted it.

Alice appeared to be a middle-aged woman, and made note that her kids didn't like her being away from home during the Summers. So, she had taken most of her classes online, with the exception of the two keystone courses when she began. “They call them the bootcamp classes,” she explained. “I was there like 6 days or 7 days when I started but the rest were online.” The week-long residency for YSLIC would be her only other face-to-face classroom experience in the program.

When asked to talk a little bit about the differences between SNL and YSLIC, she stated:

With YSLIC, I have take classes with Nancy before, so I find of know what her expectations are. I know her level of involvement. So to me it was expected...I like her style. She is very engaging. She puts a lot of input in. She is quick to respond to questions. She, um, knows....plus for me, it is also school library. That's who we all kind of are. I find it interesting when I take more of the general type class that pulls form lots of different concentrations. So for SNL, for my social networking, I find it personally difficult to find a common ground with all librarians versus just school media. Some of the things we talk about, some of the concentrations I would never be able to use in a school setting. While it is good for me to know, I sometimes struggle with some of the conversations. Not in a bad way.

Of her online learning experience, Alice stated that prior to coming into the program, “Skyping was the extent of my online learning or collaborating with other people which I do with my in-laws because they are far away”. She stated that her level of comfort and knowledge of using technology for learning had increased over her time in the program, and expressed her that “it has the potential, if it is done correctly, to have really engaging conversations even without being face to face.” She emphasized that different media could be very effective in an online class, but that this was dependent on the instructor’s skill level as opposed to any innate characteristic of the media themselves. This highlighted her perceived importance of teaching presence, as

I really liked my class on the, on the Program Marketing Assessment class (PMA) class, I forget what number that is. But I had George Friedberg (pseudonym) and, his lectures were, he had recorded them all, they were all MP format so I could put them on my iPod and listen to the lectures on my way to school or work. That was a huge breakthrough for me because I had taken some classes before that, where pretty much the lectures were a PowerPoint with no

audio. For me, I lost a lot of intricacies of where the professor was trying to go with some of the information they were trying to present. So that was probably the best for me, class in terms of technology. And then I started taking classes with Professor Myrtle and again, she was really good about creating a weekly message for each of the classes that we took which was kind of nice because it was nice cohesive start to the week. All on the same page, she was able to spell out her expectations and George was kind of the same way. It was nice to have those kinds of weekly inputs every week about the expectations, or if there were any questions or concerns and stuff like that. So they all started fresh on the same page.

Despite being enrolled in these two classes, both of which have social media components to them, when the subject of Twitter came up she quipped:

First of all, I hate Twitter. I really hate Twitter. I am trying really hard to get on board with it. Nancy loves Twitter. We have used it in other classes. I say this is where my age shows. I just think that I have missed that Twitter bus and I am trying really hard to embrace it. And again, I knew this class was going to be all over Twitter, and I just, blah, I just hate Twitter. That to me, it is nice Nancy has that option, you can use it as an enhancement. Other classes, I am forced to use it. And it is like pulling teeth.

When probed as to her reasons for not liking Twitter, Alice explained that it really had to do with “familiarity with the product,” in that, “I don’t spend a lot of time on Twitter. It tends to overwhelm me”. Alice did, however, enjoy the idea of blogging, noting that this was something she had done for other classes. She explains:

I’ve had a couple that have required to keep a blog and create a blog. I love the concept of blogging but I tend to run out of steam after the class is done and then, um, lose sight of it. I think the only time I hated a blog is when it was embedded in Blackboard. Um, and that was last semester. We were required to keep a personal blog within Blackboard. Just the

functionality of it sucked because you couldn't. You were used to the discussion boards where you could see who is made a post. Who has replied to it. You can see how many times you replied. I couldn't see on the blogs where I had posted, who I had replied to, I could see that someone had replied to mine. But again, it was just that was a functionality of it. But blogging has been fun. I really, again, you get a different side of someone because they realize it is public and you get a little more insight into what they're reading. And its not really structured. You don't have to have 140 characters. You can write as little or as much as you want, and your personality comes out a little bit more too when you are free to have that kind of conversation.

In discussing the impact of social media in her educational experiences, Alice tells me that first and foremost, she is a very visual person when it comes to information. This is part of why she thinks that Facebook very well for fostering social presence among classmates. She says:

Facebook for me, because you have the added features of pictures and not just school-based or work-related comments, you've got personal issues going on, personal funny comments, you see what they've posted on Pintrest or posted to another friend. You get a glimpse of their life. You know, voyeuristically or whatever. But you get a glimpse of their life and personalities and who they are. What they do outside of the class. Veruses with Twitter, the experiences I've had with classmates, it is more library and school directed. It is not a lot of personal information like hey "I had grilled chicken for dinner," its like "hey go check out this article" or, you know, check out this page. It's more, not more professional, but in my school experience it is more geared toward what we do as librarians. I like the personal aspects of Facebook, but I think it is because I use it every day. I am comfortable using it. It has features that I like. I want to look at people's kids and people's trips and people's experiences. Because that gives me a taste for who they are, the kind of life they're living.

In wrapping up our interview, we had a brief discussion about the residency, as this will represent Alice's last visit to Syracuse University as a student. She makes this unsolicited observation:

One comment about that, whether you want it or not. I think what's funny, because I have done a couple of residencies, is that even online, without meeting people, you tend to gravitate toward people that are very similar to you anyways. Which I found very interesting because I just kind of thought, you know, some people just rub me the wrong way in their work, I don't know. But then, and then it was nice when you met them that it was kind of solidified your feelings anyway. So, I don't know. Take that for what its worth.

AI.2.2 Terry Joplin

Very enthusiastic and willing to talk with me at length about her class experiences, Terry presents as a woman in her late 20s or early 30s, who returned to academia to work on her graduate degree after spending time in the Entertainment industry. The bulk of her classes have been in face-to-face or blended modes. Terry expresses to me that she really enjoys the approach taken by Nancy in her classes, as in "creating interactive modules. There are videos, which we all love. It is quick, it is easy. We don't have to listen to somebody drone on and lecture. It is like, mmmm, 5 minutes or less generally. And then, content with research-based content where we can go to other resources through embedded links". These resources that Terry has found useful consist of articles, school websites, blogs, and wikis. Terry comments that she also finds Nancy's approach to be particularly engaging because Nancy actively participates in the course, that is, in the intellectual discourse of the class. She explains this is engaging because "having that ability to really interact with the professor is really what you want because you are not face-to-face. And that is what you are

missing out on essentially”. When probed further, Terry reported that such brings a sense of “validation, encouragement, expertise, recommendations, advice, and personal experience”.

When asked about where the bulk of social discourses has happened in her classes, Terry explains “Face-to-face. I mean, I am friends with a lot of them. I spend time outside of class talking about other classes or, you know, conferences. So I’d say outside of class, never on Blackboard, not on Twitter. Not even really on Facebook. I mean, Facebook I interact with everybody, but it is such a mix”. Later on in the conversation, she does express a sense of interaction with distance students that indicates a sense of both social and cognitive discourse. She states:

I am interacting (online) specifically with YSLIC people that I don’t know. Because I know a good handful of them because they are campus or, I met them from a previous class and they were distance for that. Um, the ones I don’t know who have commented on my Twitter I get excited because I want to know them. I am interested to know more from their perspective. Their ideas. So in terms of my looking, of my reflecting upon myself, I am often shocked because they have commented on my idea, and they liked it, or they, you know. It is more comfortable on Twitter in that regard. On Blackboard, it is less so because not everyone comments on your stuff. Everyone is commenting because it is for a grade and they have to, um, but some people comment on their friends. Some don’t. Some don’t have time that week. Blackboard is a really interesting dynamic in terms of why people respond to certain thing. Some people don’t.

When our discussion focused on intellectual discourse, Terry related that the majority of this has happened across Blackboard and Twitter, but that if Twitter wasn’t required, it probably would not be a medium for intellectual discussions. This leads her to note:

I have a personal organizational issue which probably prevents me from using social tools as much as I would like for both intellectual discourse as well as personal. And that's having a desktop organizational strategy that allows me to post to any one that I want immediately, and I can go to it. So I have something for Blackboard, Twitter, Pintrest, and it has a box where I can post and I don't have to actually load, it spend time looking, I mean, having embedded feeds. A webpage where I can look at everything at once. Now we do have the Twitter feed embedded into our Blackboard, which is nice. So I think that helps with encouragement of use.

While this addresses the impact of the flow of information in and its impact on her propensity to use media as social or intellectual tools, she also makes comments about the impact of the flow of information out. Specifically, she notes that there are some groups on Facebook she has joined where library-related conversations happen.

And then there are other things that I post kind of aiming at some of my friends from one period or another. But what is neat is that I get a mix of those people who are liking or commenting, and it is always interesting because their opinions are going to be so vastly different in terms of how they know me. Yah. I always wonder. Facebook is a weird one because it is different than Twitter. It is a little more invasive. But perhaps so because people can look at your page and not, you know, and you don't know it. And there is a lot more on the page than their is on Twitter. You know, so that is the difference.

When asked how this makes her feel, she replied: "Guarded (laughing). I mean...I am like an onion anyway. I have many layers. And certain people have seen certain layers. So I think online it is a matter of peeling certain layers with certain social tools."

Terry was a very active participant in the residency portion of YSLIC, speaking frequently during class course discussions with a sense of enthusiasm and passion for the course material. In inquiring about if participation on Blackboard and social media was any

different during the residency, Terry indicated that generally speaking, there was less interaction because the class was meeting face to face because:

When you are in a class for that long of a period of time, like 9 to 4, by the time you get home, the last thing you want to do is go online. I mean, you've already talked to them all day long, and you've already, I mean, I think some of the people in the class were on Twitter all day. I had no need for it, so I didn't go on it at all. I mean, you know, so, it went from, you know, high use online for both tools, Blackboard and Twitter, to near zero.

AI.2.3 Eve Erickson

Eve struck me as a rather reserved woman in her mid 20s who is active in social media outside of the classroom. I was only able to speak with her about her educational experiences on one occasion, during which she reported that she uses Facebook and Twitter a lot. She also reads a number of blogs on the topic of young-adult reading as she is very interested in becoming a school librarian. However, she herself hasn't been an active blogger. She was required to create one for an introductory class in the program, but she admitted, "I haven't been keeping up with it. I mean, its hard to do with everything else. Maybe once I graduate and have more time."

She noted that she enjoys having Twitter book club discussions in YSLIC as "I think it's fun. It allows you to have like fast discussions, so and people post ideas and resources. And it is easy to keep up with. I enjoy it." However, she conceded that the discussions in Blackboard tend to be more intellectually in-depth as they are on different topics, and because one is not as limited in how much he or she can write on a given topic. However, despite the notion that there is a character limitation on Twitter, she observed that the conversations can go on more tangents and feel less restrictive. When asked why this is, she had a hard

time articulating a clear answer. Eve explained that Twitter “feels” less restrictive on a given topic because the conversations move more quickly and are easier to follow. She says “you see all the Tweets and it is in one column as opposed to the different discussions and things like that. Um, I don’t know. I guess it just has a more relaxed atmosphere”. My response to this was “I think it is interesting you feel more comfortable to go off in another direction on there than on Blackboard”, to which she stated:

I am trying to think of like, if we used Twitter as like, to have discussions for the class instead of just like a bookclub. Would it be the same? I guess because you have to, I guess because it can only be 140 characters long in a tweet, I don't know. It feels like you have more room to. Maybe...that's not right (laughing). Beause it is more restricting in a way, but you have to be more, obviously, you can't just say whatever. But I think it allows you to.

Eve has taken the majority of her classes in a face-to-face mode, but with YSLIC, she reported that she had met fewer than half of the students in person. As the conversation soon turned to social presence, I asked her specifically whether or not the students who interacted on Blackboard felt like “real people”. After a long, thoughtful pause to consider this, she responded:

I keep going back and forth, do they, do they not? I guess my gut is no. I mean, you learn a little bit about them through what they post, sure, but it is kind of like just a name. Who is this person? Having the introduction is helpful, cuz you get to learn a little bit about how the person has been doing, what there life story is, but...through the discussion (board) I would say no.

When probed about why this is, Eve elaborates that this “because you cannot see how the other person is reacting to what you are posting or saying. So I kinda feel like there is that

barrier". However, she does indicate that there is an increased sense of social presence (and "liveliness") when it comes to interaction through Twitter. She explained:

On Twitter I feel like the conversations are more real time. They are not really real time, I mean, they could be, but depending on if people are on at the same time. But with Blackboard you can never really tell if somebody is online. And I never really look at when people post. But Twitter it is like easy to see when people post, you know what I mean. Plus you have the little picture of the person and on Blackboard there is nothing. And Twitter feels more lively...It tells you something about them right? But on Blackboard, it is like "who are these people?"

APPENDIX II: STUDY FORMS AND PROTOCOLS

All.1 CONSENT FORMS

All.1.1 Instructor Consent Form

Understanding The Use and Impact of Social Media Features on The Educational Experiences of Higher-Education Students in Blended and Distance-Learning Environments

My name is Michael J. Scialdone and I am a doctoral student at the Syracuse University School of Information Studies (iSchool) in Syracuse, NY. I am inviting you and your class to participate in a research study for my doctoral dissertation. Involvement in this study is voluntary, so you may accept or decline this request. This form explains my study to you, and I will be happy to elaborate on any questions or concerns you may have.

I am interested in how students use Social and Collaborative Media for learning in distance-based and blended educational environments. Distance-based classes are those that are taught entirely online, while blended classes are those that have varying degrees of face-to-face component, with some combination of online activities. Social and Collaborative Media refers to Internet services designed to facilitate social interaction and/or collaboration among users. Examples include social-networks (e.g., Facebook and MySpace), multimedia sharing (e.g., YouTube and Flickr), communication tools (e.g., blogs and Twitter), wikis (e.g., Wikipedia), social bookmarking, (e.g., Del.icio.us and StumbleUpon), and discussion forums. I want to understand the role of Social and Collaborative Media in the educational experience from the perspective of students. To best understand this perspective, I would like to collect data from your course through observations and interviews with students, providing that they are 18 years of age or older.

The observational data I will collect from your course is limited to that which any typical student in the class would have access to. If you utilize a learning management system (Blackboard), I would request to be granted permission to access your course as a guest. Data that I would collect from such would include discussion board posts, course lessons, online profiles, or any additional materials you and the students share freely with everyone. However, emails, submitted assignments, online quizzes, grades, and other private class interactions either between you and your students, you and other instructors, or students and other students, will not be requested or collected. If there is a face-to-face component to the class, I would like to sit in on multiple occasions and make some written observations.

Additionally, I will also collect data from the Social and Collaborative Media platforms that your class utilizes. Such will similarly be limited to content which is accessible to the general public, and/or members of your class. For example, videos, blogs, tweets, or other

materials that you and your students have posted, which are accessible by anyone on the Internet, may be considered data. Additionally, any such material that is not public, but that have been made available to the entire class, might also be considered data. Private data shared only with select individuals or groups outside of this class, will not be collected or requested.

In order to protect the privacy of you and your students, all information collected for this study will be kept confidential. This means that no real names nor any online screen names from you or your students, will appear in my dissertation or any other works (written or presented) derived from this study. I may, however, use pseudonyms (made-up names) to present my research when I need to refer to specific events, experiences, or activities. Quotes, anecdotes, and any personal information (such demographics, interests, or hobbies) collected from you or your students may be attributed to this pseudonym.

In order to maintain minimal imposition, and to minimize any discomfort students may have with being “observed”, I request that you make my presence as an observer known to the students once my observations start, and any other time you may feel this is appropriate. Thus, you should make my name, email address, and phone number readily available to students. As part of this transparency, students need to also be made aware that if they are uncomfortable with my observations, they can opt of the study by contacting you or myself at any time without any risk of punishment, or any questions. I will refrain from collecting data on any of those students, and expunge any existing data I have collected about them.

I may request to interview you or particular students in your class. However, I will make no contact with students without your express permission. That is, in the event I want to initiate contact with a student, I will notify you and ask that you either make the request to the student for me, or that you allow me to contact the student only in regard to being interviewed. Students may be asked to participate in multiple interviews which will take approximately 30-45 minutes each, with a focus on inquires about activities and experiences regarding Social and Collaborative Media sites, tools, and features.

The benefit of this research is that you (and your students) will be helping me to understand the student perspective of using Social and Collaborative Media in distance-based learning. This information could potentially be used to help design better Social and Collaborative Media sites, tools, and activities for learning. Such may benefit future students, instructors, and others involved in educational institutions. It may also benefit designers of Social Media in regard to their ability to create sites and tools that support learning activities.

The risks of participating in this study are minimal. One such risk is that you may feel uncomfortable having an outsider collect data about you and your class, and report on it to

others. It is important for you to know that I am not evaluating you, your performance as an instructor, or your students' work (assignments, projects, tests, etc.). My interest lies solely in understanding the use of Social and Collaborative media from the perspective of students, not judging the work that you or they do. As explained above, I will only be collecting information that is readily available to any member of your class, and the general public. One minor risk is that there is always a possibility that someone will connect information presented from this research with the real identity of a class member. However, as noted above, creating unique pseudonyms for you and your students will minimize these risks. My notes, observations, and any other data (written and/or electronic) will be kept strictly confidential.

As stated in the beginning, involvement in this study is purely voluntary. You and your students do not have to participate in this study, and I will not be upset if you or any of them refuse to do so. You and your students may withdraw from the study easily at any point. I will also omit any data previously collected upon request without question. For example, if you're uncomfortable with having me report on responses you have made on a student's blog, your comments on a discussion thread, any demographics you have provided, or any other information I collect about your class, you can tell me at anytime (even after the class has finished) to omit such data. Your request will not be questioned, nor will it be held against you or any class members in any way.

If you have any questions, concerns, or complaints about the research, I can be reached at (315) 269-7283, or emailed at mjsciald@syr.edu. If you have any questions about your rights as a research participant, or additional concerns or complaints, contact the Syracuse University Institutional Review Board at (315) 443-3013. Copies of the final publications will be supplied whenever possible and as requested.

Please "X" the space for agreement below if you wish to participate in this study, and only if you and your students are 18 years of age or older. Then, sign and print your name, and mark today's date. If you are completing this form electronically and cannot sign and print your name, please type your name in place of your signature, type today's date, and provide your primary email address.

Agree: I have reviewed the study proposed above, including details about data collection procedures. I hereby give my agreement to cooperate with the study, granting Michael Scialdone access to make observations on my online class noted below. I am also agreeing to allow him to contact students only at my discretion in regard to requesting interviews.

Disagree: I do not wish to participate in this research study.

Signature (or typed name if submitted via email) of instructor

Date

Name of Course with Permission to Study

Printed name (or primary email address) of participant

Signature of researcher

Date

Printed name of researcher

AII.1.2 STUDENT CONSENT FORM

Understanding The Use and Impact of Social Media Features on The Educational Experiences of Higher-Education Students in Blended and Distance-Learning Environments

My name is Michael J. Scialdone and I am a doctoral student at the Syracuse University School of Information Studies (iSchool) in Syracuse, NY. I am inviting you to participate in a research study for my doctoral dissertation. Involvement in this study is voluntary, so you may accept or decline this request. This form explains my study to you, and I will be happy to elaborate on any questions or concerns you may have. I am interested in how students use Social and Collaborative Media for learning activities in distance-based and blended environments. Distance-based classes are those that are taught entirely online, while blended classes are those that have varying degrees of face-to-face component, with some combination of online activities. Social and Collaborative Media refers to Internet services designed to facilitate social interaction and/or collaboration among users. Examples include social-networks (e.g., Facebook and MySpace), multimedia sharing (e.g., YouTube and Flickr), communication tools (e.g., blogs and Twitter), wikis (e.g., Wikipedia), social bookmarking, (e.g., Del.icio.us and StumbleUpon), and discussion forums. I want to understand the role of Social and Collaborative Media in the educational experience from the perspective of students. To best understand this perspective, I would like to collect data through observations and multiple interviews.

If you are reading this document, then you are already aware that I have been collecting observational data from your class. The depth of this data extends only to information that is readily available to anyone in the class (or the general public), such as postings on your course's learning management system (Blackboard) or on a Social Media platform. Emails, submitted assignments, online quizzes, grades, and other private class interactions either between you and your instructor, or you and other students, has not been requested nor will be collected.

You have received a copy of this consent form because I am requesting permission to collect additional data from you. To compliment my observational data, I am hoping for the opportunity to interview you on multiple occasions to help me understanding the experiences of students using Social and Collaborative Media. These interviews will be scheduled around a time that is convenient for you, and should take approximately 45-60 minutes each. I intend to focus on inquires regarding activities you've engaged in using Social and Collaborative Media sites, tools, and features as part of your formal education.

In order to protect your privacy, all information collected for this study will be kept confidential. This means that no real names, or any online screen names, will appear in my dissertation or any other works (written or presented) derived from this study. I may,

however, use pseudonyms (made-up names) to present my research when I need to refer to specific events, experiences, or activities. Quotes, anecdotes, and any personal information (such as demographics, interests, or hobbies) collected from you or other students may be attributed to such pseudonyms.

The benefit of this research is that you will be helping me to understand the student perspective of using Social and Collaborative Media in distance-based and blended learning. This information could potentially be used to help design better Social and Collaborative Media sites, tools, and activities for learning. Such may benefit future students, instructors, and others involved in educational institutions. It may also benefit designers of Social Media in regard to their ability to create sites and tools that support learning activities.

The risks of participating in this study are minimal. One such risk is that you may feel uncomfortable having an outsider collect data about you and your class, and report on it to others. It is important for you to know that I am not evaluating you, your performance as a student (assignments, projects, tests, etc.), or the performance of your instructor. My interest lies solely in understanding the use of Social and Collaborative media from the perspective of students, not judging them or their work. As explained above, I will only be collecting information that is readily available to any member of your class, and the general public, and conducting interviews. One minor risk is that there is always a possibility that someone will connect information presented from this research with the real identity of a class member. However, as explained above, creating unique pseudonyms for class members will minimize these risks. My notes, observations, and any other data (written and/or electronic) will be kept strictly confidential.

As stated in the beginning, involvement in this study is purely voluntary. You do not have to participate in this study, and I will not be upset if you refuse to do so. You may withdraw from the study easily at any point without penalty from your instructor. I will also omit any data previously collected upon request without question. For example, if you're uncomfortable with having me report on responses you have made on a blog, your comments on a discussion thread, any demographics you have provided, or any other information I collect about you, tell me at any time (even after the class has finished), and I will omit that information from my study. Your request will not be questioned, nor will it be held against you or anyone else in any way.

If you have any questions, concerns, or complaints about the research, I can be reached at (315) 269-7283, or emailed at mjsciald@syr.edu. If you have any questions about your rights as a research participant, or additional concerns or complaints, contact the Syracuse University Institutional Review Board at (315) 443-3013. Copies of the final publications will be supplied whenever possible and as requested.

Please "X" the space for agreement below if you wish to participate in this study, and are 18 years of age or older. Then, sign and print your name, and mark today's date. If you are completing this form electronically and cannot sign and print your name, please type your name in place of your signature, type today's date, and provide your primary email address.

Agree: I have reviewed the information above, and agree to be interviewed for this study

Disagree: I do not wish to participate in this research study.

Signature (or typed name if submitted via email) of participant (student) Date

Printed name (or primary email address) of participant (student)

Signature of researcher Date

Printed name of researcher

APPENDIX II.2 INTERVIEW PROTOCOLS

III.2.1 Interview Protocol - Distance Learning Classes

Name/Date/Time/Medium:

Background (10 minutes max)

- Tell me a little bit about your background
 - Hobbies
 - Undergraduate Degree
 - Professional work experience
- What has been your general experience with social media?
- At what point are you in your degree program?
- What media/websites have you used for this class?
- What has been your general experience with using media for classes?

CoI Questions (40 minutes)

- What devices (hardware) do you use to interact with social media?
- How do you typically access materials for class?
- Does the nature of interaction with classmates differ on social media compared to Blackboard?

Social Presence (15-20 min)

- Is it important to you to feel socially connected to your classmates?
- What are the type of things you learn about classmates through your online transactions?
- Based on interactions you have had with class members, can you tell me what you believe they know about you as a person?

- What do you believe is conveyed about you over different media that you have used for “professional” purposes?
- Can you provide me with an example?
- Do you feel that you have an accurate impression of their personalities?
 - Can you provide me with an example?

Teaching Presence (10 min)

- How does the instructor interact with you outside of the classroom?
 - Does the instructor do anything to facilitate social discourse, or encourage you to get to know one another beyond the boundaries of class topics?
 - In your experience, what is the best way for an instructor to facilitate intellectual discourse?
 - How do you understand what he/she expects of you? (learning outcomes and expectations)
 - Can you provide me examples?

Cognitive Presence (10 min)

- Where do the bulk of intellectual discussions typically take place, and why?
- What are your thoughts on the ability for social media to support and sustain intellectual discourse?
 - Can you provide me an example?

Misc. Questions

- How important is privacy for you?

All.2.2 Interview Protocols - Blended Learning Class

Name/Date/Time/Location:

Background (10 minutes max)

- Tell me a little bit about your background
 - Hobbies
 - Undergraduate Degree
 - Professional work experience
- What has been your general experience with social media?
- At what point are you in your degree program?
- What media/websites have you used for this class?
- What has been your general experience with using media for classes (online and/or blended)?

CoI Questions (40 minutes)

- What devices (hardware) do you use to interact with social media (for class and personal)?
- Can you show me how you typically access materials for class online?

Social Presence (15-20 min)

- What are the type of things can you know about someone through online transactions?
- Is it important to you to feel socially connected to your classmates?
- Based on interactions you have had with class members, can you tell me what you believe they know about you as a person?

- What do you believe is conveyed about you over different media that you have used for “professional” purposes?
- Can you provide/show me an example?
- Do you feel that you have an accurate impression of their personalities?
 - Can you provide/show me an example?

Teaching Presence (10 min)

- How does the instructor interact with you outside of the classroom?
 - Does the instructor do anything to facilitate social discourse, or encourage you to get to know one another beyond the boundaries of class topics?
 - In your experience, what is the best way for an instructor to facilitate intellectual discourse?
 - How do you understand what he/she expects of you? (learning outcomes and expectations)
 - Can you provide/show me examples?

Cognitive Presence (10 min)

- Does discourse differ between face-to-face discussions and those that happen electronically?
- Where does the bulk of intellectual discussions typically take place, and why?
- What are your thoughts on the ability for social media to support and sustain intellectual discourse?
 - Can you provide/show me an example?

Misc. Questions

- How important is privacy for you?

APPENDIX III: COMMUNITY OF INQUIRY SALIENCES

A.III.1 BLENDED CONTEXT INDICATOR SALIENCES

Cognitive Presence Indicator Saliences in Blended Context

Cognitive Presence Categories	Indicators	Indicator Saliences (n=243)
Triggering Event	Recognize Problem	0.8%
	Sense of Puzzlement	2.9%
Exploration	Exploration within Col	0.8%
	Exploration within Message	0%
	Information Exchange	15.2%
	Suggestions	1.2%
	Leaps to Conclusions	2.9%
Integration	Integration with Col	0.4%
	Integration within Message	0%
	Connecting Ideas	0%
	Creating Solutions	0%
Resolution	Vicarious Application	0%
	Defending Solutions	0%
Total Cognitive Presence*		23.9%**

*Cognitive presence was identified in 23.9% of the blended context data (n=243 units of meaning)

**Column could add up to more than the sum of its total as a given unit of meaning may exhibit multiple indicators of cognitive presence

Teaching Presence Indicator Saliences in Blended Context

Teaching Presence Categories	Indicators	Overall Salience (n=243)*	Instructor Salience (n=45)**
Design and Organization	Setting/Communicating Curriculum	1.2%	6.7%
	Methods for Participation	0.4%	2.2%
	Establishing Time Parameters	0.4%	2.2%
	Establishing Netiquette	0%	0%
	Macro-level Comments	0.8%	4.4%
Facilitating Discourse	Identifying Agreements and Disagreements	0%	0%
	Consensus Reaching	0.4%	2.2%
	Encouraging/Reinforcing Contributions	0.4%	2.2%
	Setting Learning Climate	0%	0%
	Drawing in Participants	4.9%	26.7%
	(Re)focusing Discussion	0%	0%
	Summarizing Discussion	0.4%	2.2%
Direct Instruction	Providing Analogies	0%	0%
	Offering Illustrations	1.2%	6.7%
	Conducting Demonstrations	0.4%	2.2%
	Clarifying Information	6.2%	33.3%
	Reference to Outside Materials	5.3%	28.9%
Total Teaching Presence***		18.5%	100%

*Blended teaching presence salience in blended community of inquiry as a whole

**Instructors contributed 45 out of the 249 units of meaning analyzed the blended context

***Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of teaching presence

Social Presence Indicator Saliences in Blended Context

Social Presence Categories	Indicators	Indicator Salience (n=243)
Interpersonal Communication	Affective Expressions	19.8%
	Self-Disclosure	25.9%
	Use of Humor	35.4%
Open Communication	Continuing a Thread	0%
	Quoting Others	5.8%
	Referring Directly to Others' Messages	36.2%
	Complimenting/Expressing Appreciation	4.9%
	Asking Questions	4.5%
	Expressing Agreement/Disagreement	5.3%
	Personal Advice	2.5%
Group Cohesion	Vocatives	53.1%
	Inclusive Pronouns	7.8%
	Phatics/Salutations	0%
	Social Sharing	4.5%
	Course Reflection	9.5%
Social Presence Total*		84.8%**

*Social presence was identified in 84.8% of the blended context data (n=243 units of meaning)

**Column may add up to more than the sum of its total as a given unit of meaning may exhibit multiple indicators of social presence

A.III.2 ONLINE CONTEXT INDICATOR SALIENCES

Cognitive Presence Indicator Saliences in Online Context

Cognitive Presence Categories	Indicators	Saliences (n=489)*			
		Blackboard (n=167)**	Blog (n=156)**	SNS (n=56)**	Twitter (n=110)**
Triggering Event	Recognize Problem	7.8%	11.5%	3.6%	3.6%
	Sense of Puzzlement	3.6%	3.2%	3.6%	8.2%
Exploration	Exploration within Col	5.4%	3.8%	0%	4.5%
	Exploration within Message	2.4%	0%	1.8%	0.9%
	Information Exchange	16.2%	26.9%	32.1%	45.5%
	Suggestions	1.8%	5.1%	3.6%	5.5%
	Leaps to Conclusions	12.6%	19.2%	5.4%	11.8%
Integration	Integration with Col	5.4%	1.9%	0%	0.9%
	Integration within Message	12.6%	7.7%	1.8%	0.9%
	Connecting Ideas	3%	1.3%	0%	0%
	Creating Solutions	3%	7.7%	0%	0%
Resolution	Vicarious Application	0.6%	1.3%	0%	0%
	Defending Solutions	1.2%	3.2%	0%	0%
Total Cognitive Presence***		62.9%	74.4%	44.6%	71.8%

*A total of 489 units of meaning were analyzed with columns broken down by social media category

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of cognitive presence

***Cognitive presence salience total percentages for all distance context data

Teaching Presence Indicator Overall Saliences in Online Context

Teaching Presence Categories	Indicators	Overall Saliences (n=489)*			
		Blackboard (n=167)**	Blog (n=156)**	SNS (n=56)**	Twitter (n=110)**
Design and Organization	Setting/Communicating Curriculum	9%	0%	0%	0.9%
	Methods for Participation	0.6%	0%	0%	0%
	Establishing Time Parameters	0%	0%	0%	0.9%
	Establishing Netiquette	0%	0%	0%	0%
	Macro-level Comments	0.6%	0.6%	0%	0%
Facilitating Discourse	Identifying Agreements and Disagreements	0%	0%	0%	0%
	Consensus Reaching	0.6%	0%	0%	0%
	Encouraging/Reinforcing Contributions	15.6%	16%	3.6%	2.7%
	Setting Learning Climate	2.4%	0%	0%	0%
	Drawing in Participants	2.4%	0%	5.4%	2.7%
	(Re)focusing Discussion	0%	0%	0%	0%
	Summarizing Discussion	4.8%	3.8%	0%	0%
Direct Instruction	Providing Analogies	0.6%	0%	0%	0%
	Offering Illustrations	0.6%	0%	0%	0%
	Conducting Demonstrations	0%	0%	0%	0%
	Clarifying Information	4.8%	1.9%	1.8%	0%
	Reference to Outside Materials	0.6%	0.6%	25%	3.6%
Total Teaching Presence Overall***		26.9%	16.7%	28.6%	9.1%

*A total of 489 units of meaning were analyzed with columns broken down by social media category

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of teaching presence

***Teaching presence salience total percentages for all distance context data

Teaching Presence Indicator Saliences for Instructors in Online Context

Teaching Presence Categories	Indicators	Instructor Saliences (n=97/489)*			
		Blackboard (n=45)**	Blog (n=26)**	SNS (n=16)**	Twitter (n=10)**
Design and Organization	Setting/Communicating Curriculum	33.3%	0%	0%	10%
	Methods for Participation	2.2%	0%	0%	0%
	Establishing Time Parameters	0%	0%	0%	10%
	Establishing Netiquette	0%	0%	0%	0%
	Macro-level Comments	2.2%	3.8%	0%	0%
Facilitating Discourse	Identifying Agreements and Disagreements	0%	0%	0%	0%
	Consensus Reaching	2.2%	0%	0%	0%
	Encouraging/Reinforcing Contributions	57.8%	96.2%	12.5%	30%
	Setting Learning Climate	8.9%	0%	0%	0%
	Drawing in Participants	8.9%	0%	18.8%	30%
	(Re)focusing Discussion	0%	0%	0%	0%
	Summarizing Discussion	17.8%	23.1%	0%	0%
Direct Instruction	Providing Analogies	2.2%	0%	0%	0%
	Offering Illustrations	2.2%	0%	0%	0%
	Conducting Demonstrations	0%	0%	0%	0%
	Clarifying Information	17.8%	11.5%	6.3%	0%
	Reference to Outside Materials	2.2%	3.8%	87.5%	40%
Total Teaching Presence (Instructors Only)***		100%	100%	100%	100%

*Instructors contributed 97 out of the 489 units of meaning analyzed in the distance context

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of teaching presence

***Teaching presence salience total percentages for only instructor distance context data

Social Presence Indicator Saliences for Instructors in Online Context

Social Presence Categories	Indicators	Saliences (n=489)			
		Blackboard (n=167)	Blog (n=156)	SNS (n=56)	Twitter (n=110)
Interpersonal Communication	Affective Expressions	19.2%	26.9%	35.7%	28.2%
	Self-Disclosure	39.5%	35.9%	37.5%	33.6%
	Use of Humor	1.2%	5.8%	5.4%	1.8%
Open Communication	Continuing a Thread	0%	0%	0%	0%
	Quoting Others	1.8%	0%	0%	6.4%
	Referring Directly to Others' Messages	12.6%	17.9%	17.9%	17.3%
	Complimenting/ Expressing Appreciation	17.4%	19.9%	3.6%	5.5%
	Asking Questions	2.4%	1.3%	7.1%	3.6%
	Expressing Agreement/ Disagreement	11.4%	14.7%	10.7%	11.8%
	Personal Advice	1.8%	0%	0%	0.9%
Group Cohesion	Vocatives	16.2%	14.1%	14.3%	30%
	Inclusive Pronouns	7.2%	3.2%	5.4%	8.2%
	Phatics/Salutations	6%	4.5%	0%	0%
	Social Sharing	0.6%	0.6%	8.9%	11.8%
	Course Reflection	10.2%	0%	7.1%	6.4%

*A total of 489 units of meaning were analyzed with columns broken down by social media category

**Columns may add up to more than the sum of their total as a given unit of meaning may exhibit multiple indicators of social presence

***Social presence salience total percentages for all distance context data

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- Zhang, P., Scialdone, M. J., & Ku, M.-C. (2011). *IT Artifacts and the State of IS Research*. Paper presented at the International Conference on Information Systems 2011, Shanghai.

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PhD	Information Science and Technology Syracuse University School of Information Studies	2014
MS	Information Design and Technology State University of New York Institute of Technology	2006
BA	Communication Arts Utica College of Syracuse University	1999

PROFESSIONAL ACADEMIC APPOINTMENTS/EMPLOYMENT

State University of New York at Fredonia (Starting August 2014)
 Assistant Professor in Department of Computer and Information Sciences

Syracuse University (January 2011-May 2013; Summer 2014)
 Graduate Assistant and Adjunct in School of Information Studies

Trident International University (October 2013-Present)
 Part-Time Instructor in College of Information Systems

State University of New York Institute of Technology (Summer 2011)
 Adjunct Instructor for MS in Information Design and Technology

RESEARCH**Referred Academic Journal Articles**

- J1** Scialdone, M. J. (2010). Establishing Best Practices for Scholarly Research Based on the Tenets of Human-Computer Interaction. *AIS Transactions on Human-Computer Interaction* 2(4), 141-150.
- J2** Zhang, P., Li, N., Scialdone, M. J., & Carey, J. (2009). The Intellectual Advancement of Human-Computer Interaction Research: A Critical Assessment of the MIS Literature (1990-2008). *AIS Transactions on Human-Computer Interaction* 1(3), 55-107.

- J3** Snyder, J., Heckman, R. & Scialdone, M. J., (2009). Information Studio: An Arts-Based Approach to Educating Technical Professionals. *Journal of the American Society for Information Science and Technology* 60(9), 1923-1932.
- J4** Stam, K. and Scialdone, M. J., (2008). Where Dreams and Dragons Meet: Participant Interaction in Furcadia and Other Massively Multiplayer Online Role-Playing Games. *Heidelberg Journal of Religions on the Internet: Being Virtually Real? Virtual Worlds from a Cultural Studies' Perspective* 1(3). Available from <http://archiv.ub.uni-heidelberg.de/volltextserver/volltexte/2008/8290>

Referred Conference Proceedings

- C1** Scialdone, M. J., & Zhang, P. (2013). Applying Extended Adaptive Structuration Theory to Qualitative Research on Human-Computer Interaction. *Proceedings of the Twelfth Annual Workshop on HCI Research in MIS*. Milan, Italy, December 15-18.
- C2** Ku, M-C., Scialdone, M. J., & Zhang, P. (2012). Absent Information Technology in Legitimate Information Systems Research. *Proceedings of the 2012 iConference*, 465-467. Toronto, ON, February 7-10.
- C3** Zhang, P., Scialdone, M. J., & Ku, M-K., (2011). IT Artifacts and the State of IS Research. *ICIS 2011 Proceedings*, Paper 14. Shanghai, China, December 4 -7.
- C4** Scialdone, M. J., Rotolo, A., & Snyder, J. (2011). Social Media Futures: Why iSchools Should Care. *Proceedings of the 2011 iConference*, 514-521. Seattle, WA, February 8-11.
- C5** Zhang, P. and Scialdone, M. J. (2010). State of IT Artifacts: An Analysis of ICIS 2009 Research Papers. *PACIS 2010 Proceedings*, 1251-1262. Taipei, Taiwan, July 9-12.
- C6** Scialdone, M. J. and Zhang, P. (2010). Deconstructing Motivations of ICT Adoption and Use: A Theoretical Model and its Applications to Social ICT. *Proceedings of the 2010 iConference*, 212-217. Urbana-Champaign, IL, February 3-6.
- C7** Scialdone, M.J., Li, N., Heckman, R. & Crowston, K. (2009). Group Maintenance Behaviors of Core and Peripheral Members of Free/Libre Open Source Software Teams. Boldyreff, C., Crowston, K., Lundell, B., and Wasserman, T., (eds). *Proceedings of The IFIP WG 2.13 Working Conference on Open Source Systems (OSS 2009)*. Skövde, Sweden, June 3-6.
- C8** Scialdone, M. J., Li, Q., Heckman, R., & Crowston, K. (2009). Group Maintenance Behaviors in the Decision-Making Styles of Self-Organizing Distributed Teams. *Proceedings of the 2009 iConference*. Chapel Hill, NC, February 8-11.
- C9** Scialdone, M. J., Li, N., Howison, J., Heckman, R., & Crowston, K. (2008). Group Maintenance in Technology-Supported Distributed Teams. *Academy of Management Best Papers Proceedings*. Anaheim, CA, August 9-13.

C10 Li, N., Scialdone, M. J., Howison, J., Heckman, R., & Crowston, K. (2008). Group Maintenance in Self-Organizing Distributed Teams. *Proceedings of the 2008 iConference*. Los Angeles, CA, February 28-March 1.

Conference Presentations

- P1** Guzman, I., Stam, K., & Scialdone, M. J. (2008). What to do with Geeks and Nerds? A Collaborative Website Analysis Workshop. Conducted at *iConference 2008*. Los Angeles, CA, February 28-March 1.
- P2** Stam, K., Scialdone, M. J., & Perretta, H. (2007). Ethnography Goes High Tech: Studying Online Cultures Virtually. Paper presented at *47th Annual Meeting of the Northeastern Anthropological Association*. Ithaca, NY, April 20-21.

Non-Peer Reviewed Reports

- R1** Reynolds, R., Scialdone, M. J., & Caperton, I. H. (2010). Evidence of High School Students' Development of Contemporary Learning Abilities in a Game Design Program in Rural West Virginia www.worldwideworkshop.org/pdfs/Year2_RTC_CaseStudyReport_2_16.pdf.
- R2** Reynolds, R., Scialdone, M. J., & Caperton, I. H. (2010). Pre- to Post-Program Change in Middle School Students' Six Contemporary Learning Abilities (6-CLAs) through Project-based Design of Web-Games and Social Media Use www.worldwideworkshop.org/pdfs/yr2_srms_prepoststudy_2_16_10.pdf.

AWARDS AND HONORS

Academy of Management Best Paper Proceedings (2008)

Scialdone, M. J., Li, N., Howison, J., Heckman, R., & K. Crowston
"Group Maintenance in Technology-Supported Distributed Teams."
Academy of Management Best Papers Proceedings. Anaheim, CA, August 9–13

Faculty Award (2006)

Information Design and Technology Program at SUNY Institute of Technology

Chancellor's Award for Academic Excellence (2006 nomination)

State University of New York system

Dean's List Honors (1995-1999)

Four semesters at Utica College.

INVITED LECTURES/TRAINING

Using Social Media in the Classroom (Spring 2013): Invited by Future Professorial Program at Syracuse University

ATLAS.ti Training Sessions (Summer 2011, Fall 2010, Fall 2009, Summer 2008): Invited by Maxwell School of Citizenship at Syracuse University; and eSLib research group, center for digital literacy, and others in School of Information Studies at Syracuse University

Practical Experience in Virtual Ethnography (Fall 2007): Invited by Information Design and Technology Program at State University of New York Institute of Technology

TEACHING

Trident University International: College of Information Systems

- Principles of Information Systems in Business and Organization (3 Sections Total: November 2013-Present)
- Foundations of Management Information Systems (2 Section: February 2014-Present)
- Human-Computer Interaction (4 Sections Total: Fall 2013-Present)
- Business Ethics and Social Issues in Computing (4 Sections Total: Fall 2013-Present)

Syracuse University: School of Information Studies

- Information Reporting and Presentation (8 Sections Total: Spring 2011-Spring 2013)

State University of New York Institute of Technology: Information Design and Technology Program

- Communicating Online (1 Section: Summer 2011)

RESEARCH EXPERIENCE

Association for Information Systems

- **IS Historian Assistant** (Summer-Fall 2013): Spearheaded various logistical and organizational tasks related to creating, preserving, and storing historical documents/artifacts related to the history of the Information Systems discipline

Syracuse University: School of Information Studies

- **Research Assistant** (Summer 2012): Analyzed pilot data and drafted research grant proposal with Dr. Ruth Small.

- **Research Assistant** (Summer 2011): Collaborated on continuing research project with Dr. Ping Zhang and co-authored drafts of conference papers.
- **Graduate Assistant** (Spring 2009-Fall 2010): Collaborated with Dr. Ping Zhang to co-author conference papers and a journal article.
- **Research Assistant** (Summer 2008): Collaborated on the research design of a pilot study with Dr. Ruth Small; and drafted up an NSF research grant proposal under the guidance of Dr. Robert Heckman.
- **Research Assistant** (Summer 2007-Fall 2008): Conducted data analysis as part of a, NSF-funded research project under the guidance of Dr. Robert Heckman; and co-authored multiple conference papers.
- **Research Assistant** (Fall 2006-Summer 2007): Co-managed research lab and a research project under Dr. Derrick Coghurn; and conducted content analysis on a funded research project.

SERVICE

Service to Profession

- **Reviewer:** *International Conference of Information Systems (ICIS)* 2013
- **Volunteer:** *International Conference of Information Systems (ICIS)* 2012
- **Reviewer:** *iConference '2012*
- **Reviewer:** *International Conference of Information Systems (ICIS)* 2011
- **Reviewer:** *Journal of the Association for Information Systems (JAIS)* 2010-2011
- **Managing Editor:** *AIIS Transactions on Human-Computer Interaction (THCI)* 2009-2011

Service to University

- **Faculty Search Committee** (Summer 2011): Served as a student representative in reviewing applications and interviewing candidates.
- **Doctoral Student Listserv Administrator** (2008-Present): Manager of the internal listserv for doctoral students in the School of Information Studies.
- **Preparing Future Faculty** (2007-2009): Helped to organize and moderate two panel sessions that addressed issues for future faculty.
- **PhD Peer Mentor** (2007-2008): Served as the “go-to” person for incoming PhD student cohort, and worked with faculty to coordinate their transition.
- **PhD Committee** (2006-2007): Contributed to discussions regarding the PhD program guidelines; and participated in new student admission processing.

NON-ACADEMIC WORK EXPERIENCE

MetLife Disability

- **Business Analyst** (Jan. 2006-Aug. 2006)
- **Disability Case Manager** (Nov. 2004-Jan. 2006)

Circuit City Stores, INC.

- **Merchandising Manager** (July 2000-Nov. 2004)
- **Media Specialist** (June 1999-June 2000)

OTHER

Broadcast Radio (1995-1999; 2006; 2012-Present)

- **Weekly Pre-Recorded Show** WPNR 90.7FM Utica College (2012-Present)
- **Weekly Live Show** WERW 1570AM Syracuse University (2006)
- **Daily Live Show** WPNR 90.7FM Utica College (1997-1999)
- **News Co-Ancor** WPNR 90.7FM Utica College (1996-1998)
- **Weekly Live Show** WPNR 90.7FM Utica College (1995-1997)

Freelance Cartoonist (1997-Present)

- Chapter Illustrations in García-Murillo, M. (2013) *Leadership and Culture*. CreateSpace Independent Publishing Platform: Jamesville, NY.
- *Syracuse University Daily Orange* (2008)
- Self-published weekly online (1997-1999; 2001-2004)
- *Utica College Tangerine* (1997-1999)

Freelance Photographer (2010-Present)

PROFESSIONAL REFERENCES

Available Upon Request