BUILDING RELATEDNESS THROUGH HASHTAGS:

SOCIAL INFLUENCE AND MOTIVATION WITHIN SOCIAL MEDIA-BASED ONLINE

DISCUSSION FORUMS

by

LUCAS JOHN JENSEN

(Under the Direction of Lloyd Rieber)

ABSTRACT

With the rise of online education, instructors are searching for ways to motivate students to engage in meaningful discussions with one another online and build a sense of community in the digital classroom. This study explores how student motivation is affected when social media tools are used as a substitute for traditional online discussion forums hosted in Learning Management Systems. The main research question for this study was as follows: What factors influence student motivation in a hashtag-based discussion forum? To investigate this question, the following subquestions guided the research:

   a.   How do participants engage in the hashtag discussion assignment?

   b.   What motivational and social influence factors affect participants' activity when they post to the Twitter hashtag?

   c.   How do previous experience with and attitudes toward social media and online discussion forums affect participant motivation in the hashtag-based discussion forum?

Drawing on the motivational theories of Self-Determination Theory and Social Influence Theory, as well as the concept of Personal Learning Environments, it was expected that online learners would be more motivated to participate in online discussions if they felt a sense of

autonomy over the discussion, and if the discussion took place in an environment similar to the social media environment they experience in their personal lives.

Participants in the course were undergraduate students in an educational technology course at a large Southeastern public university. Surveys were administered at the beginning and end of the semester to determine the participants' patterns of technology and social media usage, attitudes toward social media and online discussion forums, and to determine motivation levels and social influence factors. Participants were asked to use the social media platform Twitter to post about class using a specific hashtag. At the end of the semester, all tweets were analyzed and four participants were interviewed.

Contrary to expectations, overall participation in the Twitter assignment was low and no meaningful discussion was created. Participants reported neutral levels of motivation on the surveys. Responses indicated that the low motivation levels might have been due to the lack of personal details shared and the lack of information that seemed relevant to the participants' personal interests. A lack of relatedness to the content and fellow classmates online led participants to a lack of motivation that kept them from engaging in conversational uses of Twitter.

INDEX WORDS: Hashtags, Intrinsic motivation, Motivation, Personal learning environments, Self-determination theory, Social influence theory, Social media, Twitter, Web 2.0

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DEDICATION

This dissertation is dedicated to all of the friends, family, peers, and colleagues who guided me along the way. I especially want to thank my partner Jen Schumann, whose love, support, and honesty made this possible. Jen: words cannot express how much I appreciate you.

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CHAPTER I

INTRODUCTION

In the last two decades, the mainstream growth of the Internet has led to transformative change in education, particularly higher education, as the Internet has provided new opportunities for online and distance learning (Allen & Seaman, 2010; Shea & Bidjerano, 2010). Commensurate with this change has been a rise in the sphere of online activity known as social media – networks of users tied together via Web 2.0-based applications that offer individuals an opportunity to generate and share content of their own (Kaplan & Haenlein, 2010). Noting that the term *social media* is hard to define in a world where almost all technologies feature a social component, Kaplan and Haelein (2010) defined *social media* as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow creation and exchange of user generated content" (p. 61). Examples of social media are large social networks like Twitter, Facebook, Tumblr, or sites like Instagram and YouTube, which focus on one type of media.

A recent development in the world of social media is the introduction of so-called "hashtags," represented symbolically by the "#" or "pound sign" symbol. Whenever a hashtag is placed in front of a word, that word immediately becomes an ad hoc searchable subject, and all of the tweets "tagged" with the hashtag are now joined together, even if the users don't know each other (Ebner, Beham, Costa, & Reinhardt, 2009; Page, 2012). Creating a hashtag is as easy as placing the pound sign before a word or phrase, so after their introduction to various social media, particularly the microblogging service Twitter, hashtags became a powerful and unique

way to experience global events, have political debates, or meet people with similar interests. Hashtags are also used by corporations and celebrities to push their branding (Page, 2012). For example, if a Twitter user were to hashtag "#NFL" on the end of a post (called "tweets" within Twitter) on professional football, he/she has now entered the tweet into a larger ad hoc group of tweets regarding the NFL, searchable by any Twitter user who either clicked on "#NFL" on a tweet or searched for the phrase "NFL" within Twitter itself. What makes a hashtagged conversation within Twitter different from one within a traditional online discussion group or social network is that the user still retains ownership of the site, adding posts to a larger whole without the reciprocal relationship of following one another (Page, 2012).

Online education has been steadily growing, and as of 2008, nearly 4.6 million students were enrolled in some form of online education (Gabriel, 2010). Recent economic downturns have driven millions of people to look online for new learning opportunities and careers. Between 2007 and 2010, online education enrollment increased 25% (Allen & Seaman, 2010; Shea & Bidjerano, 2010). Universities – whether public, private, or for profit – are increasingly pushing online education as part of their curricula (Gabriel, 2010). In some cases, online education is considered necessary for these institutions' long-term survival (Gabriel, 2010; Kaya, 2010). As universities and other institutions of higher education move to implement more online education, they also struggle with the quality of the education (Kaya, 2010). Lack of engagement and motivation is seen as one of the central problems in the current landscape of online education. Online education – sometimes known as e-learning – offers significant advantages in flexibility, individuality of instruction, and fewer geographic and temporal limitations; it has also been shown to have significant drawbacks, such as student isolation, the need for tutors, and lack of participation (Wu, Tennyson, & Hsia, 2010; Wu, Tennyson, Hsia, & Liao, 2008; Yang & Liu,

2007). Research has shown that online learning can be a disengaging experience (Barbour & Plough, 2009; Palloff & Pratt, 2007). The flexibility and convenience of taking a class online is an enticing prospect to many students, but staying engaged in an online course, whether synchronous or asynchronous, requires a high level of motivation (Barbour & Plough, 2009).

As technology further intertwines with traditional modes of education, many of today's classrooms include online components to supplement face-to-face course activities. The practice of combining disparate learning delivery methods such as multimedia, interactive elements, and technologies with traditional face-to-face instruction has become known as *blended learning* (Brew, 2008; Graham, 2006; Rovai & Jordan, 2004; Wu et al., 2010). Though a classroom with an interactive whiteboard might be seen as a *blended classroom*, it is more accurately a classroom that *practices* blended learning. For the purposes of this study, blended learning refers to face-to-face instruction featuring online, Web 2.0, and/or social media components such as wikis, blogs, Facebook pages, YouTube channels, Twitter accounts, hashtags, and/or Instagram accounts.

Online discussion forums are typically administered through the built-in tools of a Learning Management System (LMS), such as Blackboard, Desire2Learn, or Instructure Canvas. Although LMSs offer basic tools for class instruction and management, there has been debate – as there is with all technology – as to the limits of their pedagogical value (Hong, 2008; Martindale & Wiley, 2004). The tools of an LMS, particularly those regarding discussion forums, are often obsolete, bearing little resemblance to the tools that learners might use when they engage with the Internet in their personal lives.

The pedagogical concept of Personal Learning Environments (PLEs) challenges the dominance of LMS usage in online courses, bringing a student-centered and bottom-up

perspective to online education. The concept of PLEs is less than a decade old, and, as such, no central, agreed-upon definition of a PLE exists, though some key common elements appear to be emerging in the literature. McElvaney and Berge (2010) defined a PLE as "the sum of websites and technologies that an individual makes use of to learn" (para. 18). This definition is a broad, inclusive one, but it is an acknowledgment that online learning can, and does, take place in spheres beyond the typical LMS-housed world of online education. To be sure, LMSs are included in this definition, but so are social media like Facebook or Twitter, blogs, video sharing sites, and informational clearinghouses like Wikipedia, to name a few. In much the same manner as students learn outside of the face-to-face classroom context, so, too, do online students. Online students might learn from articles posted by friends on Facebook, have heated debates in the comment section of a political blog, or share home renovation ideas on Pinterest. These are all learning activities, however removed they are from the formality of an online classroom. In a sense, all people engaged in online activity have their own personal online environment made up of the websites they frequent, including social media sites that employ hashtags.

The thinking behind PLEs has been that instruction should be situated in an environment more congruent with the learners' typical technology usage for their personal lives (Attwell, 2007). In a PLE, each online learner may create her and his own personal learning environment, and can choose to engage with the course materials and assignments using the tools more closely aligned with each learner's non-academic life (Sclater, 2008; Van Harmelen, 2008), including social media like Facebook, Twitter, and Pinterest. In this type of learning environment, students have more choice about how they engage with the material and are able to use tools with which they are more comfortable. Students rarely encounter environments like LMSs in their personal online lives, yet many of them spend time traversing the Internet, tweeting, blogging, social

networking, posting videos to YouTube, and engaging in online discussions. These active online personal lives stand in contrast to the lesser-motivated online educational lives of students.

To understand the concept of the PLE and the contrast between personal and academic online activity, it is important to also understand the development of the Web 2.0 paradigm. Web 2.0 has been a philosophical shift as much as a technological one, representing a change in how people create and share content on the Internet, moving from developer-generated to user-generated and shared content (Cormode & Krishnamurthy, 2008; Greenhow, Robelia, & Hughes, 2009; Ravenscroft, 2009). In the early Internet days of the 1990s, retroactively known as the era of "Web 1.0," content was delivered in a top-down manner by a limited number of content providers (Cormode & Krishnamurthy, 2008; Greenhow et al., 2009). Although Web 1.0 was touted as being "interactive," beyond its e-commerce role, it functioned as little more than a repository of knowledge, akin to an encyclopedia or dictionary, or a series of news articles generated by the major media (Cormode & Krishnamurthy, 2008; Greenhow et al., 2009). This version of the Internet mirrored traditional educational practices, expert-driven and top-down, with users functioning as passive receptors of information (Dede, 2008; Greenhow et al., 2009). Most user-generated content was relegated to communication-based communities, like message boards, chat rooms, and bulletin boards, and posting content online required knowledge of programming hypertext markup language, otherwise known as HTML (Greenhow et al., 2009). In the late 1990s, and even more so in the early 2000s, the top-down paradigm of content generation started to shift toward the user, as new tools – dubbed Web 2.0 – helped users generate and post content to the Web themselves (Greenhow et al., 2009). Websites and tools like blogs, YouTube, wikis, Twitter, and social networking sites all accurately represent the movement in user-generated content that characterizes Web 2.0.

For some time, online discussion forums have been a preferred pedagogical method for generating and facilitating discussion in online education and classrooms with online components meant to be substitutes for class discussion found in face-to-face classrooms (Mazzolini & Maddison, 2003; Rossman, 1999). As asynchronous instruction and online discussion forums have increased in popularity, so have examinations of the issues associated with their implementation, particularly the learning outcomes and quality of student postings (Mazzolini & Maddison, 2003; Vonderwell, 2003). Much of the research interest in online discussion forums centers on the participatory role of the instructor in the online discussion process and how involved he or she should be in leading discussions, rather than on the online learning environment itself (Mazzolini & Maddison, 2003; Rossman, 1999). Research has also found the dynamics of the online course community play into the efficacy of online discussion forums: topics of interest to the students can generate a verbose discussion, while topics of little interest fail to generate much discussion at all (Vonderwell, 2003). Motivation and engagement are often a problem in this discussion environment, possibly because of the isolation noted by Barbour and Plough (2009) in addition to the uninteresting content aforementioned.

A number of motivation theories might explain the motivational disparity between personal and educational online usage, including Self-Determination Theory (SDT), advanced by Ryan and Deci (2000a). SDT holds that intrinsic motivation is the most powerful motivator, driven by the innate human needs of autonomy, competency, and relatedness. Perhaps these Web 2.0-based environments and social media, as proposed by PLE advocates, satisfy these innate needs.

As shown in Figure 1, SDT aligns with many of the constructs of Web 2.0. Web 2.0 tools and environments offer Internet users greater perceived autonomy over how they interact with,

share, and create content. This autonomy might actually be the perception of autonomy rather than actual autonomy, insofar as users are still constrained by the limitations of the social media tools being used. Similarly, users feel more competent using Web 2.0 and social media tools because the tools are often easy to use, and they are able to choose from an array of available tools, selecting those with which they are most comfortable. Finally, the innate need of relatedness is satisfied by the social nature of Web 2.0 tools and environments. Web 2.0 users can receive feedback from peers on almost any piece of content they share, as well as offer their feedback on others' shared content they encounter.
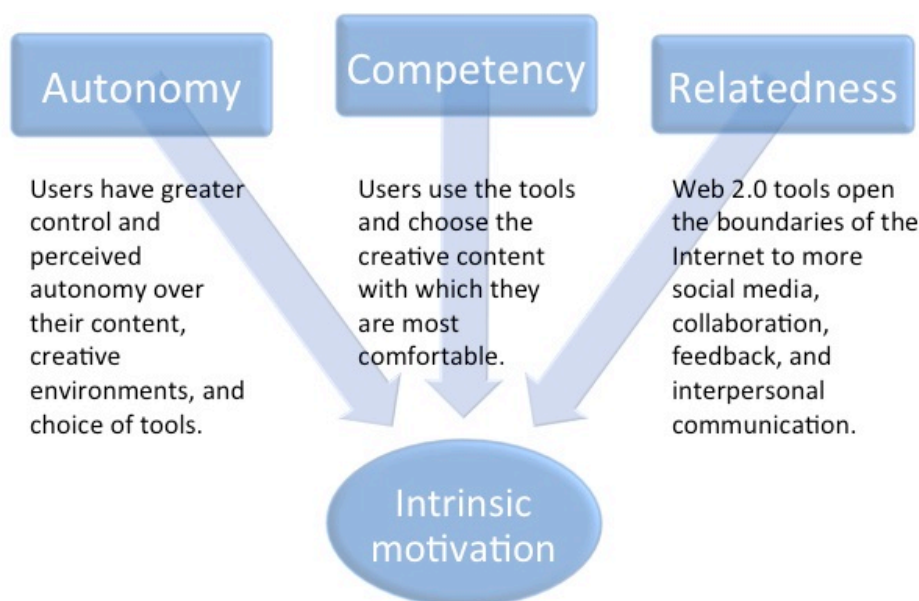
Figure 1. Self-Determination Theory and Web 2.0.

A final theory that aligns with previously discussed issues of social media, Web 2.0, and hashtag discussions is that of Social Influence Theory (SI), which has posited there are three processes that influence people to act: *compliance*, *internalization*, and *identification* (Kelman,

1958, 1961; Li, 2011). The central tenet of SI as it relates to social media usage is "that people's behaviours are affected by their beliefs on how others will view them when they use [information technology]" (Li, 2011, p. 566). *Compliance* occurs when someone is influenced to act in a certain way to receive approval from another individual or group he or she deems to be important (e.g. agreeing to post a number of times to a discussion because the instructor requires it) (Kelman, 1958, 1961; Li, 2011). *Internalization* as a social influence occurs when individuals are influenced to adopt a value system they think will help them meet goals, such as choosing to accept the advice of an expert because the expert is deemed trustworthy (Deutsch & Gerard, 1955; Kelman, 1958, 1961; Li, 2011). *Identification* occurs when an individual takes on the behaviors of an individual or group in order to self-identify with them because he/she sees identification with this group as a positive development. All of these needs are similar to the need for relatedness espoused in SDT (Deci & Ryan, 1985, 2000; Deci, Vallerand, Pelletier, & Ryan, 1991) because they all hinge on approval or validation from an outside source to meet our intrinsic need for interpersonal relationships (Schutz, 1966).

Statement of the Problem

Motivation in online courses and, in particular, motivation while using discussion forums, has been a continuing problem for online educators and face-to-face educators (Barbour & Plough, 2009; Mazzolini & Maddison, 2003; Rossman, 1999; Vonderwell, 2003). These discussion forums are typically housed within LMS environments, some of which use outdated toolsets. This is happening at the same time that so many online students are likely using the Web in a highly dialogic manner, with Web 2.0 and social media tools such as Facebook, Twitter, Pinterest, and Reddit. Because the use of online discussion forums is a dominant mode of online

instruction, it might be important to harness some of the motivational power of social media to increase student participation in these spaces.

The PLE concept has suggested that asking students to use tools and sites they choose to use in their personal lives could have possible advantages for engagement, motivation, and learning (Martindale & Dowdy, 2010; McElvaney & Berge, 2010; Sclater, 2008). The students are allowed to choose their learning environment and share information in the way that suits them best (McLoughlin & Lee, 2010). Given the relative newness of the PLE concept, there is little research, beyond a few qualitative studies, that has demonstrated the merits of PLEs in an educational setting, though the research base is growing (McLoughlin & Lee, 2010; Sclater, 2008). Research is needed to explore the benefits of PLEs.

Furthermore, one of the central problems with online education has been thought to be a lack of motivation (Barbour & Plough, 2009; Palloff & Pratt, 2007). However, motivational researchers have focused their attention on learning within LMSs with lesser attention given to learning with social media and Web 2.0 tools. PLE advocates also generally fail to make the connections between established motivational theories (e.g. Self-Determination Theory and Social Influence Theory) and the PLE concept.

There is a need to give online educators as many tools as possible to motivate online learners, and the PLE concept, with its focus on the use of social media and Web 2.0 tools in the classroom, could provide the kind of pedagogical flexibility and diversity needed. Without research evidence to support the PLE concept and examine potential motivational benefits, it remains an abstraction with little practical purpose.

Purpose of the Study

The purpose of this study was to investigate the motivational effects of an online discussion forum when it was moved from an LMS to a social media/Web 2.0-based learning environment afforded by the use of hashtags. This study focused on the use of a hashtag in a blended learning classroom as a means of grouping together discussants in a series of instructional technology courses for a required class discussion. In consultation with the course instructor, Twitter was chosen as the social media environment for the study, based on the presumption that it was popular with college students, though there is some evidence that Twitter is not as popular as perceived (Davenport, Bergman, Bergman, & Fearrington, 2014; McKinney, Kelly, & Duran, 2012) The study was conducted in one section of an introductory undergraduate instructional technology course, consisting of 19 undergraduate students, in a college of education at a public university in the southern United States.

Each week, participants were asked to discuss course activities outside of the face-to-face classroom. In lieu of a conventional online discussion forum, students used a specific hashtag to create discussions on Twitter during the semester. The hashtag the participants used included the course name and number, but it will be referred to as "#techclass" in this research to provide anonymity to the participants.

As illustrated in Figure 2, this study was framed by Social Influence Theory, the Self-Determination Theory of motivation, and the concept of Personal Learning Environments. The central idea was that motivation is, at least, a product of the intersection of these three theories, as well as the environment and the learner's previous experience with and attitudes toward technology.
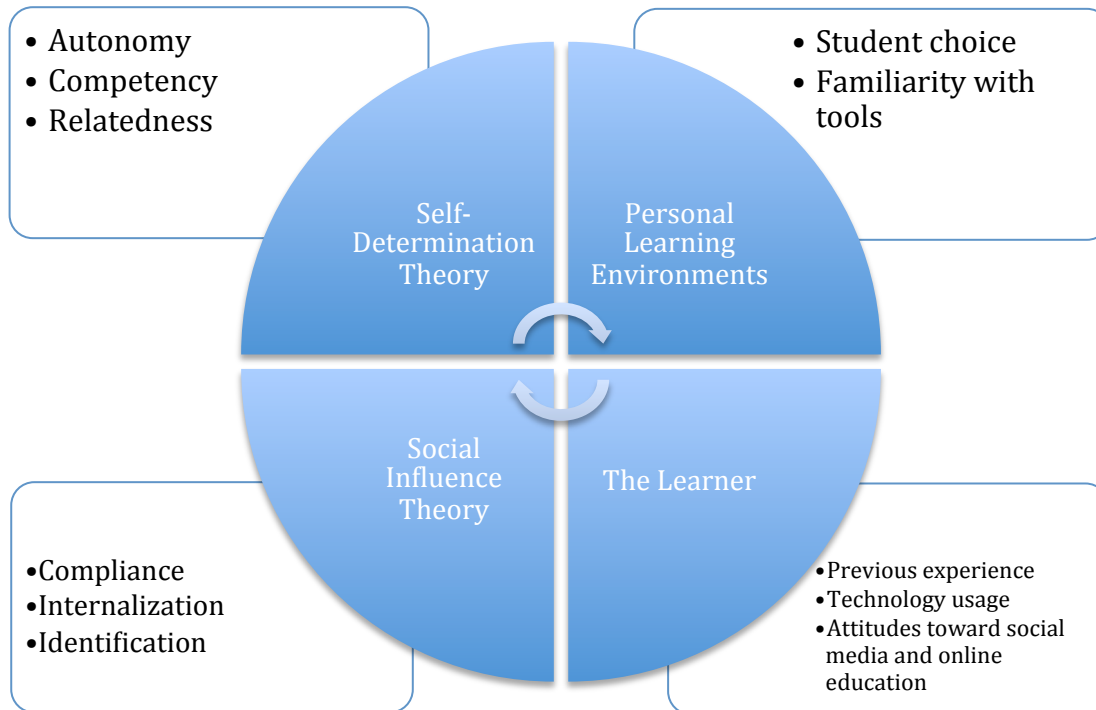
Figure 2. Conceptual framework.

Research Questions and Methods

The main research question for this study was as follows: What factors influence student motivation in a hashtag-based discussion forum? To investigate this question, the following subquestions guided the research:

    d. How do participants engage in the hashtag discussion assignment?

    e. What motivational and social influence factors affect participants' activity when they post to the Twitter hashtag?

    f. How do previous experience with and attitudes toward social media and online discussion forums affect participant motivation in the hashtag-based discussion forum?

The research questions and accompanying methods of data collection and analysis are presented in Table 1.

Table 1

Research Questions and Methods

Research Question	Data Type	Data Source	Analysis Procedure
How did participants engage in the hashtag discussion assignment?	Quantitative (screen capture)	Hashtag-Based Discussion Forums (n=114)	Descriptive statistics based on word and response counts
	Qualitative		Constant Comparative Method
What motivational and social influence factors affected student activity when posting to the Twitter hashtag?	Quantitative	Intrinsic Motivational Inventory (IMI) (n=19)	Descriptive Statistics
		Social Influence Survey (n=19)	
	Qualitative	Interview (n=4)	Constant Comparative Method
How did previous experience with and attitudes toward social media and online discussion forums affect student motivation in a hashtag-based discussion forum?	Quantitative	Technology Usage Survey (n=16)	Descriptive Statistics
	Qualitative	Interview (n=4)	Constant Comparative Method

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to investigate the motivational effects of holding a class discussion in a social media-based environment. This study focused on the use of a hashtag to bring together participants in an instructional technology course, rather than the typical online discussion forum in a Learning Management System (LMS). The study was informed by the concept of Personal Learning Environments (PLEs) wherein learners engage with learning online in environments that are similar to the technology they prefer to use in their daily lives (Dabbagh & Kitsantas, 2012; Martindale & Dowdy, 2010; Sclater, 2008). The research was also influenced by a number of motivation theories, particularly Self-Determination Theory (SDT), which suggests that people are intrinsically motivated when the three needs of autonomy, competency, and relatedness are met (Deci & Ryan, 1985, 2000; R. M. Ryan & Deci, 2000a). Another theory that informed this research is the theory of Social Influence, which has helped determine why participants choose and continue using a particular form of social media (Bagozzi & Lee, 2002; Hsu & Lin, 2008; Kelman, 1958, 2006; Zhou, 2011).

Google Scholar, the ERIC Database of journal articles, and the GALILEO and GIL databases from the University of Georgia were the main search tools used for this study. Articles and books cited in the bibliographies of referenced works were also used whenever necessary and appropriate. Searches were initiated using the following terms: Personal Learning Environments, Self-Determination Theory, blended learning, online learning, motivation theories,

online discussion forums, motivation in online learning, social media in education, online education, learner autonomy, Social Influence Theory, and other related terms.

This chapter begins by presenting research on online discussion forums and the difficulties encountered in their implementation. Social media is discussed throughout, including ties to Social Influence Theory, a possible theoretical explanation for why people choose to use certain social media over others (Cheung, Chiu, & Lee, 2011; Hsu & Lin, 2008; Zhou, 2011). The literature review also presents a number of motivational theories, particularly Self-Determination Theory, and ties them to the use of social media and Web 2.0. Definitions for blended classrooms and PLEs are included here, and the differences between the two learning environments are highlighted. Research and conceptual writing in PLEs are presented, though little empirical research on the topic exists. Varying definitions of PLEs and this lack of research are discussed.

Online Discussion Forums and Social Media

This research focused on online discussion forums and social media alternatives to them, so relevant literature was reviewed with regard to participation and motivation in online discussion forums and social media. Online discussion forums are fixtures of online and distance education, but are they effective teaching tools? Evidence of their efficacy has been mixed, depending on what the goals of the forum were, and what level of depth and interaction was desired (Thomas, 2002). In two studies of over 1000 undergraduate psychology students, Cheng et al. (2011) found that student participation in a voluntary online discussion forum improved overall course performance, and that reading online forum posts had a specific positive effect on exam performance.

One problem with the research on online discussion forums is that a clear, consistent theoretical concept of what constitutes online learner participation is missing in the literature (Hrastinski, 2008). Typically, the unit of analysis in online discussion research is word or post length, in part because researchers often equate writing activity with participation (Hrastinski, 2008; Mazzolini & Maddison, 2003). Similarly, the debate about what qualifies as quality or good participation in an online discussion forum is not a settled one, nor is the role of the instructor (Hrastinski, 2008; Mazzolini & Maddison, 2003; Vonderwell, 2003; Vonderwell & Zachariah, 2005).

Mazzolini and Madison (2003) studied 200 students who participated in online postgraduate astronomy courses. They found that the rate of participation was less affected than originally thought by the level of instructor participation in the discussion forum, and, in fact, the more the instructor participated in the forums, the shorter student responses became (Mazzolini & Maddison, 2003). Noting that they needed better measures of student participation, Mazzolini and Maddison (2003) suggested that, "Although the rate of student participation and the length of their discussion threads may be common intuitive ways used by instructors to judge the 'health' of their discussion forums, it is far from clear from this study that they are useful measures to judge the quality of the learning taking place there" (p. 252).

In a case study of two sections of an online graduate course at a Midwestern university, Vonderwell and Zachariah (2005) found online learner participation was influenced by factors including "technology and interface characteristics, content-area experience, student roles and tasks, and information overload" (p. 225). Of particular interest to me is the fact that the technology and interface affected student participation, as did previous experience with the tools being used (Vonderwell & Zachariah, 2005).

Similarly, Thomas (2002) tracked the activity of 69 undergraduate students using a discussion forum for a class and asked for their opinions of the experience. The more guidance and modeling they had from instructors and peers, the better they performed, but "'normal discussion' did not occur," even with greater levels of student and instructor participation. As Pincas (1998) noted, "In order to learn collaboratively in such an environment, participants need to engage in what they can perceive as a normal discussion" (p. 14). Thomas (2002) isolated several factors that limited the depth and conversationality of the discussion forums studied: the isolation caused by online discussions in asynchronous education; the organization - or lack thereof - of information in the threaded discussions; and the difference between the spoken and written word.

The level of participation is not necessarily related to the quality of discussion. Angeli et al. (2003) looked at the participation of 146 student teachers in a discussion forum and came to the conclusion that students rarely engaged in higher level thinking without sufficient mentoring, mostly posting personal reflections, stories, and advice.

In a meta-analysis of research on online discussion forums, Hrastinski (2008) isolated six different types of participation in online discussion forums. The first is simply accessing the e-learning environment as a symbol of participation, followed by writing, then "quality" writing (Hrastinski, 2008). Other forms of participation are reading and writing, writing something of perceived or actual importance, and simply engaging in the dialogue itself (Hrastinski, 2008).

Because the use of the hashtags to create ad hoc online discussion forums is a fairly new phenomenon, as is social media in general, there is a lack of empirical research on the use of social media in education, despite social media's popularity (Junco, Elavsky, & Heiberger, 2013; Junco, Heiberger, & Loken, 2011). Li (2011) notes about research into broader social network

[SN] acceptance: "…although SN web sites facilitate interpersonal interaction, there is a paucity of research that examines how interpersonal motives affect these web sites' acceptance" (p. 563).

Little empirical research exists on Twitter usage – or social media usage in general – in education, despite the perceived popularity of social media with younger student populations (Junco et al., 2013, 2011). Junco et al. (2013) conducted an experimental study testing student engagement when using Twitter in the course, as well as Twitter's effect on student grade performance. The experimental group (n=75) was required to use Twitter for discussions of various class activities and content, while the control group (n=55) use more traditional means. The study found that the use of Twitter in a guided format throughout the semester had significant positive effects on student engagement with the assignment and on grades of the experimental group that used Twitter (Junco et al., 2011). Another follow-up study on Twitter usage in education found that faculty involvement in Twitter helped increase engagement as compared to a group with minimal faculty involvement in discussions (Junco et al., 2013). Both studies confirmed that Twitter has the potential for engaging students and instructors in online course discussions (Junco et al., 2013, 2011).

Social Influence Theory

Several such interpersonal motives are explored in Social Influence Theory (SI). SI has tenuous connections and similarities to theories of social learning advanced by scholars such as Bandura (1977), though it has achieved far less popularity. In recent years, theories of social influence, driven by the work of Kelman (1958, 1961), have been used in connection to research regarding the adoption of social media (Cheung et al., 2011; Li, 2011). Social Influence Theory proposes three social influences on individual behavior – identification, internalization, and

compliance (Kelman, 1958, 1961; Zhou, 2011). *Identification* occurs when a person seeks to be like a person he or she sees as important or influential, or when the individual accepts influence in order to be identified as being similar to someone or a part of a group (Kelman, 1958, 1958, 2006; Zhou, 2011). *Internalization* occurs when someone is influenced by another because of perceived shared values, often manifesting itself in the form of group norms of behavior (Bagozzi & Lee, 2002; Kelman, 1958, 1961, 2006; Li, 2011). *Compliance* "can be said to occur when an individual accepts influence from another person or a group in order to attain a favorable reaction from the other – either to gain a specific reward or avoid a specific punishment controlled by the other, or to gain approval or avoid disapproval from the other" (Kelman, 2006, p. 3).

Though little research exists on Social Influence Theory and online education, what does exist related to technology adoption is promising and relevant to this research. Cheung et al. (2011) surveyed 182 students as to why they used Facebook along dimensions of social presence and influence. They found that social presence was the most important social influence on whether or not students adopted Facebook, specifically on questions related to personal contact, sociability, and warmth (Cheung et al., 2011). Li (2011) surveyed 274 social network users and found that the identification and internalization processes had indirect influence on online social network acceptance, primarily through image and status concerns. Compliance seemed to have the most direct effect on enjoyment of the social network (Li, 2011).

In testing out a Technology Acceptance Model (TAM) over four longitudinal studies, Venkatesh and Davis (2000) found a strong relationship between technology adoption and the social influences of image, voluntariness, and subjective norm when participants were asked why they adopted a specific technology. In this case, *image* is a social influence in line with Kelman's

(1958, 1961) concept of *identification.* Participants were more likely to adopt a technology when they saw it as improving their image (Venkatesh and Davis, 2000). *Voluntariness* is similar to the Self-Determination Theory (SDT) concept of *autonomy* in that users perceive their adoption of the technology to be voluntary (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000a; Venkatesh & Davis, 2000). The concept of the *subjective norm* is connected to internalization: users might be more inclined to adopt a technology if they feel it has the approval of important people whose behaviors influence them (Kelman, 1958; Venkatesh & Davis, 2000). Technology adoption was stronger with those who felt like their participation was voluntary, and that their image was being judged by those important to them (Venkatesh & Davis, 2000). Zhou (2011) surveyed 450 students about their online community participation and found that social influence factors of internalization and identification, as represented by group norm and social identity, respectively, had an effect on online participation. However, compliance, in the form of the subjective norm, did not show evidence of having a significant effect on online participation. In a survey of 437 employees of three technology companies in Taiwan, Ho et al. (2012) found that social identification factors, as well as trust, were the most significant factors in online knowledge sharing within the companies' internal online communities. Of particular importance was feeling of belongingness to a larger group as well as a perception that everyone was willing to work (Ho et al., 2012).

Learning Environments

This research takes place in a blended learning environment. As with many educational terms, there is some debate as to what constitutes "blended learning." Generally speaking, blended learning involves some combination of computer-mediated instruction and traditional face-to-face instruction (Graham, 2006; Osguthorpe & Graham, 2003; Shivetts, 2011; So &

Brush, 2008; Wu et al., 2010). Sometimes used interchangeably with the term *hybrid learning*, blended learning is more than just the introduction of the Internet to a traditional face-to-face classroom. Osguthorpe and Graham (2003) identified six advantages and goals to the blended learning approach: pedagogical richness, access to knowledge, social interaction, personal agency, cost effectiveness, and ease of revision. Motivation, self-management, and self-regulation are all important factors in student success in a blended learning environment, because less time is available for face-to-face instruction and guidance.

The research into blended learning is still early and inconclusive. To be sure, the importance of the course format itself (e.g. whether or not the course is blended, face-to-face, or fully online) might have been overstated in the past (Dziuban & Moskal, 2011). After reviewing survey data of student perceptions of online, blended, and face-to-face classrooms, Dziuban and Moskal (2011) came to the conclusion that "a course is a course is a course," (p. 1) at least when considering only students' perceptions. Computer self-efficacy, and student perception thereof, can play an important role in determining the success of a blended-learning system, as can previous experience with the tools (Wu et al., 2010).

Personal Learning Environments

As previously mentioned, the concept of Personal Learning Environments (PLEs) is one that arose alongside Web 2.0 and social media tools like blogs, wikis, and social networks (Attwell, 2007; Baig, 2013; Barbera & Reimann, 2013; Martindale & Dowdy, 2010; Sclater, 2008). The PLE concept is somewhat new, dating only back to the mid-2000s, and a central definition has not yet emerged. Attwell (2007) defined a PLE as "activity spaces, consisting of loosely coupled Web 2.0 tools and learning resources collected by students to interact and communicate with each other and experts in order to address their heterogeneous learning

requirements, the ultimate result of which is the development of collective learning" (p. 1). A key component of PLEs is personalized control, meaning that the learner has control over his or her learning environment through technology choice and the easy customization of Web 2.0 tools (Attwell, 2007; Baig, 2013; Martindale & Dowdy, 2010; Sclater, 2008).

Another benefit of the PLE is its perceived ability to connect informal and formal learning and foster self-regulation (Dabbagh & Kitsantas, 2012). McLoughlin and Lee (2010) noted that "[t]he learning experiences that are made possible by social software tools are active, process based, anchored in and driven by learners' interests, and therefore have the potential to cultivate self regulated, independent learning" (p. 29).

In one experiment with over 100 Greek undergraduates, learners were given the opportunity to design their own web-based learning environments out of Web 2.0 tools (Palaigeorgiou, Tsinakos, & Triantafyllakos, 2011). They did not immediately challenge the LMS' all-in-one dynamic; they still wanted a place where all of the course material was housed. However, they did exhibit expectations and behaviors in line with the central tenets of Web 2.0. For example, in this case, they wanted to share notes and links, to produce multimedia content and mashups, to customize their interface, and to interact and network with other students, peers, and professors (Palaigeorgiou et al., 2011).

Constructing a PLE can be a difficult task because of the personalized nature of each learning environment, especially with the increased customization options available to the average user (Palmér, Sire, Bogdanov, Gillet, & Wild, 2009). The customization can be more than cosmetic, with learners enabling and disabling features of their PLE to suit their needs. Palmér et al. (2009) identified six dimensions to consider when building a Personal Learning Environment: Screen, Data, Social, Temporal, Activity, and Runtime. Each of these dimensions

requires a different feature set, and this lack of standardization and compatibility among the various tools used to create PLEs – blogs, wikis, social media accounts, content management systems, and more – might make their creation more difficult. Not specifically addressed by Palmér et al (2009), but implicit in their article, is the issue of the rapid cycle of obsolescence of the PLE tools, most of which are social media or Web 2.0. Palmér et al. (2009) suggested six tools that might be used in a PLE: iGoogle, Google Wave, Moodle and Wookie, g.ho.st, Afrous, and Netvibes. At least two of these – iGoogle and Google Wave – are now defunct, and the other four are obscure and not representative of the types of sites that learners might typically use, which runs contrary to the PLE concept at its core.

Sclater (2008) argued that PLEs are already here, and that any hopes of integrating PLEs with LMSs is a difficult task at this point, as interoperability standards between LMSs are rarely available and the providers are unlikely to share data with each other. Effective implementation of a PLE might simply be good online teaching that appropriately uses the breadth of online technologies available to the instructor (Sclater, 2008). Other potential pitfalls to the PLE approach involve knowing the learners' previous experience with technology, encouraging and sustaining community interaction, and incorporating good pedagogy into usage of current, relevant tools (McLoughlin & Lee, 2010). In addition, privacy concerns can be an issue when dealing with open, non-educational Web 2.0 and social media tools (McLoughlin & Lee, 2010).

At the core of the PLE concept is the idea that learners use Web 2.0 tools in their daily, out-of-school lives, and some research bears this out. In a survey of 51 young learners, aged 11-16, 100% of participants used Web 2.0 technologies in their non-educational lives, but only used Web 2.0 tools 45% of the time for schoolwork (Clark, Logan, Luckin, Mee, & Oliver, 2009). Learners who used Web 2.0 for classwork were "predominantly using these media for social,

leisure or entertainment purposes, such as chatting, making arrangements, playing games, creating Web pages, sharing photos, music, personal profiles and online journals" (Clark et al., 2009, p. 62). Even with experience and a desire to use the tools, learners needed training to incorporate Web 2.0 tools into an educational setting (Clark et al., 2009). Similarly, Drexler (2010) found that students in a K-12 setting who were asked to build their own personal learning environments had received limited, inconsistent training from instructors as to the use of technology in the classroom. In this case, the central concern about PLEs that emerged was the balance between teacher control and student autonomy (Drexler, 2010).

Motivation

What motivates people who create and interact online? What kinds of motivation are we seeing that can be brought into the online educational sphere? The most relevant theory to this research that addresses these questions is Self-Determination Theory (SDT), primarily the work of Deci and Ryan. Deci and Ryan's work often focused on intrinsic motivation – motivation that comes from within (Chen & Jang, 2010; Covington, 2000; Deci & Ryan, 1985, 2000; Dickinson, 1995; R. M. Ryan & Deci, 2000a). Of course, SDT is not the only motivational theory, and so, before discussing it in depth, the differences between *intrinsic* and *extrinsic* motivation, as well as an acknowledgment of other theories that inform this piece, will be considered.

Intrinsic Motivation

Ryan and Deci (2000a) explained the concept of intrinsic motivation: "When intrinsically motivated a person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards" (p. 56). People are intrinsically motivated because they find something to be "enjoyable, optimally challenging, or aesthetically pleasing" (Chen & Jang, 2010, p. 742). Humans are naturally inquisitive, playful, and curious beings, and the most

intrinsically motivated activities are those that tap into this natural need for exploration and internal growth in knowledge and skills (R. M. Ryan & Deci, 2000a). When they are intrinsically motivated, people engage in a task for the activity and the process itself, not necessarily because of goals and rewards (Schunk, 2008).

Lepper and Hodell (1989) identified four sources behind intrinsic motivation: curiosity, challenge, control, and fantasy. In the context of the Internet, many people participate in the user-generated Web out of curiosity, a sense of challenge, or pursuing fantasy, as content creators have control over how they create and share content, as well as pursuing creative outlets.

Similarly, Csikzentmihalyi (2000) studied the phenomenon of "flow," a state wherein people are intrinsically motivated by their actions while losing awareness of the state they are in, ultimately leading them to a state of total engagement and involvement (Schunk, 2008). This "flow" state exists at a personal place that sits between challenge and enjoyment: the action should be challenging enough to be intriguing, but not so far beyond the person's skills as to create anxiety (Csikszentmihalyi & Rathunde, 1993). Perhaps the ease of use and communication that occurs via Web 2.0 tools (e.g.. the convenience of self-publishing and sharing content via blogs) increases the user's skill and alleviates some of this anxiety, ushering them closer to the engagement and immersion necessary for "flow."

What all of these conceptions of intrinsic motivation have in common is the idea that the action, process, or task itself is more important than separable outcomes, rewards, or goals at the end of the process, which are seen as more extrinsic motivators. Internet users might share articles they have read on Facebook, might curate a photographic collection on Flickr, might write up their recipes on a Tumblr blog, and might make movies of their pets and post them to YouTube, all for no reward other than the process itself.

Extrinsic Motivation

In contrast to intrinsic motivation, extrinsic motivation concerns external pressures or promises of rewards that motivate a learner to learn something or accomplish a task. Some examples of extrinsic motivators in a traditional K-12 classroom setting might include grades, parental pressure to succeed, the promise of extra credit or extra recess time, end-of-year awards and recognition, or in-class praise. The key here is that the motivation comes extrinsically, not intrinsically, from without the student rather than within (Pintrich & Schunk, 2002; R. M. Ryan & Deci, 2000a; Schunk, 2008). People and factors that are not necessarily under his/her control, such as the promise of a reward or the potential for negative consequences upon failure, motivate the student in extrinsic motivational situations. Ryan and Deci (2000a) referred to this type of extrinsic motivation as "a construct that pertains whenever an activity is done in order to attain some separable outcome" (p. 60).

This notion of a "separable outcome" is important to distinguishing between extrinsic and intrinsic motivation. The student who does homework because of his/her parents' pressure is extrinsically motivated, but so too is the student who wants to do well in school to secure a better future job (R. M. Ryan & Deci, 2000a). It might seem that the student working toward better employment is more intrinsically motivated, but the student is still working under the extrinsic motivation of solid employment and the good pay and job satisfaction that goes along with it.

It is important to note that extrinsic and intrinsic motivation are often conceptualized as existing on the opposite ends of a continuum, though most activities are initiated with both types of motivation involved (Schunk, 2008). Working on a particular task might be motivational in and of itself, insofar as the process of undertaking it provides "feelings of competence and control, self-satisfaction, task success, or pride in one's work" (Schunk, 2008, p. 502). This

would make the task intrinsically motivating. However, there might be a reward for completing

the task that acts as an extrinsic motivator as well (Schunk, 2008). In addition, there is the idea of

"emergent motivation" coming from the discovery and accomplishment of new goals and

rewards that present themselves throughout the process of accomplishing the task

(Csikszentmihalyi & Rathunde, 1993; Meyer & Turner, 2002; Schunk, 2008).

To put this in the context of Web 2.0, an amateur filmmaker might decide to make a short

documentary using her or his iPhone and iMovie. This act is intrinsically motivating because it is

artistically satisfying, allowing the filmmaker to explore her or his knowledge of film techniques

as well as pursue an investigative topic of interest. However, the filmmaker also knows that the

documentary, once posted to a video-sharing site like YouTube, might go viral, possibly leading

to work on higher-budget documentaries. Throughout the process, the filmmaker might delight in

overcoming the small technological and artistic challenges, new mini-goals, and sub-tasks that

emerge along the way as part of the greater task.

Locus of Control and Attribution Theory

The idea of control is an important one to many motivational theorists, particularly borne

out in the work of Rotter and his ideas of the locus of control, as well as Weiner's Attribution

Theory. Rotter's (1966, 1990) seminal work concerned the locus of control and whether that

control is perceived as being external or internal. The external locus of control means that people

believe that their behavior has no bearing on the outcomes of their actions; whereas with internal

locus of control they believe that their behaviors heavily influence outcomes (Rotter, 1966;

Schunk, 2008). If the learner believes that she or he is responsible for her or his own success –

having a bigger internal locus of control – then she or he will be more intrinsically motivated, as

opposed to believing that he or she has no responsibility for it, that the control of the outcomes is

coming from without rather than from within (Rotter, 1966, 1990). "External" learners tend to

focus on factors like teachers and luck as being responsible for their success or failure and,

according to Rotter, are not as highly motivated (1966). One might argue that Web 2.0

technologies put more of the locus of control on the user. Users are more in control of how they

interact with their environments, and thus feel more responsible for the consequences of their

actions. After all, nobody forces a user to post to Pinterest or upload a video to YouTube or tag a

photo on Facebook. Though Rotter's work tends toward the simplistic and dichotomous, control

is an important aspect to consider.

From a learning perspective, Weiner and others pivoted off this work and introduced

Attribution Theory, splitting external and internal factors into four major causal factors: ability,

effort, luck, and task difficulty (Schunk, 2008; Weiner, 1979, 2008). Attribution Theory

diminishes the importance of luck and places more of the focus on ability and task difficulty, as

well as whether causal attributions are controllable or uncontrollable and stable or unstable

(Schunk, 2008; Weiner, 1979). Internal attributions of success tend to favor the more

controllable and stable causes like good effort, and these attributions can influence further

motivation (Schunk, 2008). Designing learning and giving feedback that is effort-attributional is

essential to motivating learners, and because Web 2.0 tools offer users more control, learners in a

PLE or Web 2.0-enabled online classroom might attribute their successes more to internal forces

like effort and ability than the external, like teachers and task difficulty.

Social Learning Theory and Modeling

Social Learning Theory, as proposed by Bandura (1977), has important ties to studies of

motivation, particularly in its notions of self-efficacy and modeling. Self-efficacy is a person's

belief that he/she can accomplish a certain task (Bandura, 1977; Bures, Abrami, & Amundsen,

2000). A number of contributing factors might affect one's perception of the likelihood of success: "prior accomplishments, knowledge of others, observational experiences, physiological indexes, and forms of persuasion" (Bures et al., 2000, p. 598). Modeling is one of the many factors highlighted by Social Learning Theory; it is an important way that students learn, both from peers and from instructors (Pintrich & Schunk, 2002; Schunk, 1991). People are motivated and gain self-efficacy when watching others succeed at a task, and they lose self-efficacy when watching others fail (Schunk, 1991).

Motivation and Online Learning

Research has shown that online learning can be an isolating and disengaging experience (Barbour & Plough, 2009; Palloff & Pratt, 2007). The flexibility and convenience of taking a class online is an enticing prospect, but staying engaged in an online course, whether synchronous or asynchronous, requires a high level of motivation (Barbour & Plough, 2009). In their personal online lives, students spend time traversing the Internet, tweeting, blogging, social networking, posting videos to YouTube, and engaging in online discussions. Why are they so motivated online in their personal lives but not in education?

Commensurate with the increase in the use of Web 2.0 tools is the development of a newer concept in online education, that of a Personal Learning Environments (PLE). In a PLE, an online course is situated in an environment more congruent with the online environments students traditionally use in their personal lives (Martindale & Dowdy, 2010; Sclater, 2008). In this type of learning environment, students have more choice with how they engage with the material and are able to use tools with which they are more comfortable. There are a number of motivation theories that might explain the disparity between activity online in personal and educational spaces.

Self-Determination Theory

A motivational theory that is highly relevant to discussions of Web 2.0 and social media is Ryan and Deci's (2000a) *Self-Determination Theory* (SDT), which contends that learners have innate psychological needs and are motivated by them. SDT remains popular, in part because of empirical support and adaptability to multiple settings (Chen & Jang, 2010; Pintrich & Schunk, 2002). SDT examines the importance of psychological needs as well as goals in motivating learners. This idea of competence and self-determination as an innately human psychological need better explains why some people undertake activities involving Web 2.0 and content creation without specific extrinsic goals and rewards. According to SDT, there are three central psychological needs: *autonomy, relatedness*, and *competency*; these three needs are essential for understanding what instructional goals work and why they do, as well as why people pursue activities that have no extrinsic rewards (Deci & Ryan, 2000).

SDT holds that learners with a higher feeling of *autonomy* will be more engaged, persistent, and creative, and thus more motivated intrinsically while learners who believe they have little control or autonomy over a learning situation will be less motivated to learn (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000a, 2000b). Though Deci and Ryan have focused more on autonomy than control, their ideas do bear some similarity to attribution theory in the focus on the importance of the individual's needs and self-perception (Deci & Ryan, 1985, 2000; Rotter, 1966, 1990; Weiner, 2008). As has been discussed, if learners feel they are responsible for their own success, then they are more motivated, as opposed to attributing success to external factors like teachers or luck (Rotter, 1966).

In theory, PLEs provide online learners with some of this autonomy, potentially enhancing their intrinsic motivation. Learners have more control over the manner in which they

engage with the course material. They have more autonomy over customization of the appearance of their learning environment, and they may even have some autonomy over the controls in the learning environment itself. The tools chosen for the administration of the courses more closely resemble the tools they use in their actual everyday online lives. The instructor can even ask the learners to choose the tools to use in the online course, giving them ownership of, and thus more autonomy over, their online education.

With the transfer of autonomy inherent in a PLE might come a wider pedagogical approach to online education. Instead of didactic, top-down transmission of information via online instructors in static environments, student choice would elevate learners to the level of co-pilots in their own online education. They would have more tools from which to choose as well. Drawing off SDT, this increased autonomy and learner choice would motivate learners and engage them more in their own online education. The wider pedagogical approach afforded by Web 2.0 and PLEs could also be a motivating factor, as it would break free from a teacher-centered, top-down, passive approach sometimes found in current online education (Martindale & Dowdy, 2010; McElvaney & Berge, 2010; Sclater, 2008; Severance, Hardin, & Whyte, 2008; Wilson, 2008).

The voluntary nature of engaging with the material is an important aspect of the autonomy piece in SDT. Ryan et al. (2006) did research on video games as viewed through the lens of SDT. In trying to explain the pull of video games, Ryan et al. (2006) noted that video game play was usually voluntary, so the autonomy of the player was quite high. Also, games with more choice or autonomy within the game might have motivated the players more (R. M Ryan et al., 2006). The results of the study seemed to confirm this hypothesis: choice within the game, as well as intuitive controls, seemed to be motivating factors (R. M Ryan et al., 2006).

Though this concerned video games and not Web 2.0, the salient outcome of this research is the notion of bringing the learner this sense of the voluntary in her or his learning. If, through Web 2.0 or PLEs or other means, learners feel like they are learning voluntarily or have the perception that they have autonomy and choice as to what they are doing – much like a typical video game player – then they will be intrinsically motivated. Autonomy is important, even when it is perceived more than actually given.

A benefit of SDT is that it does not ignore extrinsic motivation altogether, even in situations where one of the essential needs like autonomy is proven to be intrinsically motivating. When examining autonomy in the workplace, Gagné and Deci (2005) found that workers who were granted autonomy to solve problems were more intrinsically motivated. However, these "autonomy-supportive" environments still found motivational success via extrinsic motivators. When the work was made to be more salient and seem more important to the workers, Gagné and Deci (2005) found evidence of extrinsic motivation. To increase worker motivation, the higher-ups in business needed to increase interest among the workers (intrinsic) and importance to the business (extrinsic) with regard to work tasks (Gagné & Deci, 2005).

Beyond autonomy, PLEs based on Web 2.0 tools satisfy the other needs presented in SDT, relatedness and competency (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000b; R. M Ryan & Powelson, 1991). Relatedness is an important part of education; students are motivated by feeling like they are a part of an integrated community (Bauer & McAdams, 2000; Deci et al., 1991; Ryan & Powelson, 1991). If students do not feel related to others in the class, then motivation and participation can be a problem. For example, Vonderwell (2003) conducted a case study of 22 students in an online Educational Technology course, 20 of whom had never taken an online class before. Students enjoyed the semi-anonymity of the course, but they had

trouble relating to, collaborating with, and conversing with other students if they did not know them beforehand. Structure and leadership were required to increase student participation (Vonderwell, 2003). Garrison and Cleveland-Innes (2005) also found that social interaction increased the overall level of interaction.

The social nature of Web 2.0 tools and environments such as Facebook and Twitter that might be used in a PLE could provide online students with a sense of community and relatedness. The Web 2.0 world is one of discussion, sharing, and appropriation. When students engage with course material in a PLE using Web 2.0 tools, their work can be commented on, passed around, and re-appropriated with greater ease than in typical online learning environments. This can help students feel a sense of community and that their work has, at the very least, the potential to reach their peers.

In addition, the tools being used are the tools that the students use online in their personal lives, so the learning curve would be lower than if they were learning an unfamiliar system. This would increase their sense of competency, which is another intrinsic motivating need in SDT (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000a). Competency means more than just being competent with regards to tool usage. The students get to choose how to engage with the material in the manner they feel most comfortable and competent: a student who feels more comfortable blogging can choose to blog, and a student who would rather podcast or start a wiki can choose that path. In this sense, competency and autonomy are intertwined, but autonomy has to do with learners feeling in control and autonomous in their learning, whereas competency is more concerned with their feelings of self-efficacy and confidence when engaging with the material (Deci & Ryan, 2000).

Though SDT is a popular theory in educational research, this popularity has not moved to the online educational realm. Chen and Jang (2010) noted that self-determination theory (SDT) has not seen much use in discussions of online learning, even though there are great motivational concerns, particularly in terms of attrition in online courses. They tested the autonomy and needs-satisfaction of 262 students in an online special education program at a southeastern US university. They found that students' need-satisfaction had a positive effect on self-determination. However, they, somewhat counter-intuitively, found that some supports for self-determination had the opposite effect of their intent. They warn against classifying students as either motivated or unmotivated, noting that – in line with SDT – the students' needs and goals might be a complex system of needs, feelings, beliefs, and goals, both extrinsic and intrinsic (Chen & Jang, 2010).

CHAPTER III

METHODS

As online education grows in popularity, it is important for online educators to learn what motivates learners online and in blended classrooms. The Personal Learning Environment (PLE) concept posits that online learners might benefit when online class settings closely mirror their own personal online settings, such as social media sites (Sclater, 2008; S. Wilson et al., 2007). PLEs are based primarily in the social and user-focused media of Web 2.0 (e.g. Twitter, blogs, wikis, and Facebook) and less so upon proprietary online education tools like Learning Management Systems (LMSs) (e.g. Moodle, Sakai, Blackboard, and WebCT). Users engage with social media and Web 2.0 tools, such as Twitter, Facebook, Pinterest, and streaming video, with little expectation for extrinsic reward (Cheung et al., 2011; Dabbagh & Kitsantas, 2012; Davenport et al., 2014; Zhou, 2011). Meanwhile, instructors in online education often struggle to keep students motivated (Barbour & Plough, 2009; Chen & Jang, 2010). Exploring online classroom environments that more resemble the students' online world outside of typical online education has promise in delivering social and motivational benefits to online education. Because PLEs have only been discussed in the last decade, there is little research, either qualitative or quantitative, on the use of PLEs in online classrooms, much less on their effect on motivation. Proponents of PLEs make many claims as to their potential efficacy, but little research has been conducted on their implementation.

The tenets of Self-Determination Theory (SDT) are aligned with both the central values of Web 2.0/social media and the concepts underpinning Personal Learning Environments. Self-

Determination Theory holds that relatedness, competency, and autonomy intrinsically motivate learners (R. M. Ryan & Deci, 2000a). In addition, social influences like sociability, status, intention, compliance, internalization, and identification might have an effect on student motivation and activity in online education (Hsu & Lin, 2008; Kelman, 1958, 1961; Li, 2011).

The purpose of this study was to investigate the motivational and social influence effects of holding online discussions in a blended classroom in a social-media based environment, in this case, a Twitter hashtag. The main research question for this research was as follows: What factors influence student motivation in a hashtag-based discussion forum? To investigate this question, the following subquestions guided the research:

a. How do participants engage in the hashtag discussion assignment?

b. What motivational and social influence factors affect participants' activity when they post to the Twitter hashtag?

c. How do previous experience with and attitudes toward social media and online discussion forums affect participant motivation in the hashtag-based discussion forum?

Research Setting

The research setting for this study was an introductory undergraduate instructional technology course in the college of education at a large public university in the southeastern United States. The course is popular and features a number of sections, but the intent of this research was to focus on one class section for the surveys and interviews, even though—as discussed later—all of the course sections used the course hashtag for discussion. The course used a blended learning approach, integrating social media throughout the course sections. In this case, a hashtag that was also the course section number was used to gather course discussions.

For this study, the hashtag #techclass will be used in place of the original hashtag in the interest of anonymity.

This assignment accounted for a small portion of the participants' participation grade in the course. The participants were told to use a Twitter account for the class and to post at least 40 tweets to the class hashtag over the course of the semester. This discussion occurred on Twitter instead of using the online discussion forum tools of the university's supported LMS, Desire2Learn. The course discussions were intended to cover a variety of topics, most of them related to instructional technology, technology integration, and social media, though participants were given freedom to post content that interested them, as long as it was related to class.

Participants

The participants for this study consisted of the 19 students enrolled in the course who agreed to participate in this research as well as the 114 public Twitter accounts that posted to the Twitter hashtag. Though the 19 student survey participants came from a variety of majors, they were all undergraduates. A majority of the students had some experience with online education and social media. The student population was predominantly female, with only two males included in the class total of 19. The average age of students was 20; 56% of the participants were between the ages of 18-20, and 44% were between the ages of 21-23.

Research Design and Methods

This study used a basic interpretive and descriptive qualitative research approach featuring mixed qualitative and quantitative data gathering methods and data analysis based on a grounded theory approach. The basic descriptive and interpretive qualitative approach, as outlined by Merriam (2002), suited the data collection and analysis proposed. Though some qualitative research guides list multiple variations on qualitative research traditions like

ethnography, phenomenology, and case study research (Creswell, 2006; Mayan, 2009; Merriam, 2002; Patton, 2002), Merriam (2002) had argued that many studies are simply basic interpretive or descriptive qualitative studies. In a basic qualitative study, "the researcher is interested in understanding how participants make meaning of a situation or phenomenon" (Merriam, 2002, p. 6). Interviews, observations, and artifact analysis are used to generate rich descriptions of the themes that emerge from data analysis (Merriam, 2002).

Because of the nature of class enrollments, I could not set up an experimental design with control and experimental groups that were randomly assigned. There existed difficulties in setting up a more traditional experimental design with control and experimental groups, given time constraints, a lack of course sections taught by the same instructor, and a low number of course instructors willing to conduct this research in their course. In part because of these factors, a basic qualitative study was chosen as the methodological approach for this study, looking at the Twitter hashtag used for the course. A goal of this research was to look at the entirety of the hashtag and give a rich description of it from the perspective of participant motivation. This study was intended to provide an early, complex idea of what motivation looks like in a social media environment in an online education perspective.

For the purposes of this research, the grounded theory methodology informed the data gathering and analysis process. Grounded theory is a widely used qualitative method that attempts to generate a theory of the experience based on the data that have been gathered, moving beyond a description of the event into a theory of participant behavior (Creswell, 2006; Mayan, 2009). Grounded theory is so named because the resultant theory is "grounded" in the data. In some ways it is the reverse of traditional scientific method: rather than having a theory tested, the theory is induced from the data. This method arose from sociology via Glaser and

Strauss (1968) and its roots are in post-positivism, as it is a methodology concerned with notions of objectivity and truth, more so than other qualitative methods (Mayan, 2009). Grounded theory – and with it, its primary method of data collection and analysis, the *constant comparative method/process* – provides some legitimacy to qualitative research because of its systematic approach to data analysis, but also comes under criticism for its inability to grapple with a more complex view of the world, given its positivist roots (Butler-Kisber, 2009; Glaser & Strauss, 1968). Charmaz (2006) offered a constructivist version of grounded theory as an alternative to Strauss and Glaser's work. Later, Strauss and Corbin (2008) provided a more objectivist vision, stressing fieldwork, a complex world view, and potential for social change (Butler-Kisber, 2009; Charmaz, 2006). Though grounded theory remains controversial, the constant comparative method continues to be accepted by other qualitative traditions – such as ethnography and phenomenology, as a method of data analysis (Creswell, 2006). This approach is particularly helpful because of its versatility in handling different types of data; all of the data go through the same analysis procedure on the way to generating a theory (Charmaz, 2006). Because this research involved data of different types gathered by different means, the constant comparative approach was used as the primary source of qualitative data analysis. The constant comparative approach will be described in more detail in Chapter 6.

Sampling

This study used convenience sampling, as these participants were the participants in a course where the research could be conducted (Patton, 2002). Random sampling was not a possibility, and neither was criterion sampling, which would have been more purposive (Cilesiz, 2011; Creswell, 2006; Polkinghorne, 1989; Seidman, 2006). The survey and interview participants were chosen because of their enrollment in section of the aforementioned

instructional technology course and were participating in the hashtag-based discussion board assignment. The 114 accounts that publicly posted public posting to the Twitter hashtag were a

Data Gathering

Following are a list of the instruments and methods used in data gathering. Figure 3 illustrates the process of data gathering that was conducted for this study.

Beginning of semester
• Technology Usage Survey

During the semester
• Screen Capture Hashtagged Posts

After the semester
• Intrinsic Motivation Inventory
• Social Influence Survey
• Interviews
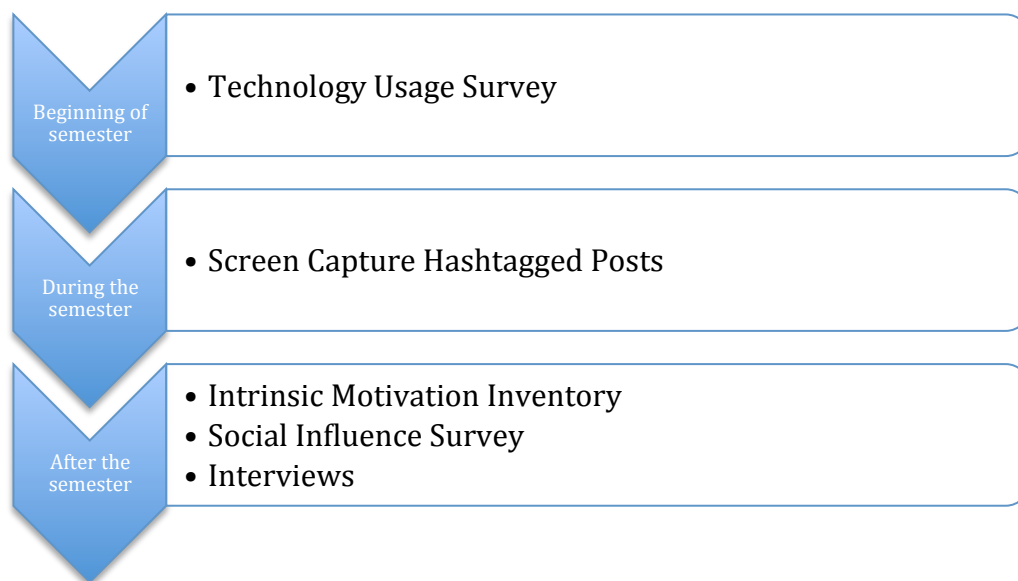
Figure 3. The data gathering process.

Intrinsic Motivation Inventory

The Intrinsic Motivation Inventory (IMI, 2013) was developed by Deci and Ryan to allow for self-reporting of subjective motivation related to given activities in a laboratory setting. The IMI (see Appendix B) asks participants to report their levels of "interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, and perceived choice" (IMI, 2013, p. 1), though only the measure of interest and enjoyment truly measures intrinsic motivation. This measurement was the focus of the research. A seventh subset of questions on relatedness was added to the survey and was administered, though its validity has not been confirmed, unlike the other measures (IMI, 2013). There is some research to back its validity

(IMI, 2013; McAuley, Duncan, & Tammen, 1989), and it has been used in multiple experiments related to self-regulation and intrinsic motivation (Deci, Eghrari, Patrick, & Leone, 1994; Richard M. Ryan, Connell, & Plant, 1990; Richard M. Ryan, Koestner, & Deci, 1991; Richard M. Ryan, Mims, & Koestner, 1983; Richard M. Ryan et al., 1983).

McAuley, Duncan, and Tammen (1989) tested the reliability of the instrument in a sports setting with 116 participants playing the basketball variant "HORSE." The researchers tested four of the instrument's subscales and found acceptable alpha coefficients: Interest/Enjoyment (α = .78); Perceived Competence (α = .80); Effort (α = .84); and Pressure/Tension (α = .68). The internal consistency for the whole survey between the subscales had a Cronbach alpha (α) of 0.85, indicating satisfactory validity. McAuley, Duncan, and Tammen (1989) concluded about the IMI: "[the IMI] measures both specific components of intrinsic motivation, as well as reflecting the overall levels of intrinsic motivation one experiences as a function of engaging in the task" (p. 55).

Social Influence Survey

Li (2011) developed an instrument to measure and test what social factors influenced students' adoption of and participation in social networks. He administered and validated the survey in a pilot study with 350 participants then refined the survey for a study of 274 participants (Li, 2011). The SIS has subscale measures for the constructs *status*, *sociability*, *perceived enjoyment*, and *intention*, in addition to three items focused on *social influence*. The participants answered this on a Likert scale from 1 to 5, with 1 being "disagree" and 5 being "strongly agree." A modification of the SIS is included in Appendix B.

Li's (2011) two studies assessed the convergent validity of all items was shown to exceed the 0.70 threshold, indicating reliability. The composite reliabilities of the construct subscales

(e.g. status, sociability, intention) ranged from 0.87 to 0.95, all above the minimum benchmark 0.7 for acceptable reliability (Li, 2011). Similarly, the Cronbach's alpha values ranged from 0.71 to 0.92, which exceed the minimum threshold 0.6 for acceptable reliability (Li, 2011). The convergent validity of the SIS construct subscales was also indicated (Li, 2011). The correlation between the subscales indicated satisfactory discriminant validity, and the model did an acceptable job of explaining variance between responses (Li, 2011).

Technology Usage Survey

This survey (see Appendix A) was used to gauge each participant's experience with various technologies and social media tools, such as Facebook, Instagram, Twitter, Reddit, and Pinterest. Each participant was asked how often he/she used each given technology, whether daily, weekly, monthly, or yearly. They were also asked to describe their pre-existing attitudes and feelings toward Twitter, online discussion forums, hashtags, and the use of social media in education in order to judge if these attitudes would have any effect on how students perceived the activity. This survey was developed for this course, and its reliability and validity have not been assessed.

Interviewing

Another important data gathering method in this study was interviewing. Interviewing offers deeper perspectives into behaviors and attitudes that cannot be directly observed or easily interpreted (Patton, 2002). Interviewing generates data where observation is difficult – "feelings, thoughts, and intentions" (Patton, 2002, p. 341) – and self-reported data are often unreliable. Qualitative interviewing involves seeing other perspectives and trying to get inside the machinations and motivations of the research participants, while acknowledging one's own biases and positions (Patton, 2002; Seidman, 2006).

The in-depth qualitative interviewing used for this research is a condensed version of the phenomenological interviewing techniques outlined by Seidman (2006).. For Seidman (2006), phenomenological interviewing is largely open-ended, where the interviewer reacts and follows up with questions based on the responses of the participant. Though interview protocols are necessary to organize thoughts, the interviewing relationship is the most important aspect of a good interview (Seidman, 2006). Seidman (2006) suggested building a long, deep relationship with each participant over the course of three 90-minute interview sessions. The first interview is the "Focused Life History": the participants are asked how they got to where they are now, so to speak (Seidman, 2006, p. 17). With this first interview, the interviewer builds an interviewing relationship and rapport with the interviewee, and it informs the structural description of the phenomenon, insofar as it answers the question of how his/her experiences affected his/her perception of the phenomenon (Creswell, 2006; Moustakas, 1994; Seidman, 2006). The second interview is more procedural, known as the "Details of the Experience" interview, where the focus shifts to a relatively opinion-free recounting of the details of the experience – in this case, the Twitter hashtag assignment (Seidman, 2006, p. 18). The third interview is called "Reflection on the Meaning," the stage where the participant reflects on what the experience meant to them (Seidman, 2006, p. 18). This third interview most informs the textural description of the phenomenon.

Four participants were selected for the interviewing process based on their Twitter posting patterns and availability and willingness to discuss the assignment. Two of them—Karen and Marion—posted more to Twitter than their classmates, while Nicole and Daniel engaged much less with the course hashtag. Their names have been changed for this study. This process of three interviews presented serious logistical challenges for this study, so Seidman's process,

including the use of a semi-structured protocol (see Appendix H) and a free-flowing

conversation that builds a relationship (2006), were modified. Three 90-minute discussions about

Web 2.0, Twitter, social media, and PLEs would be difficult to schedule with students, and, as

these interviews were conducted at the end of the semester, there was not enough time to

schedule three interviews with each student. The 90-minute interview requirement was adjusted

when time became an issue in each individual interview, and the three stages were condensed

into one interview, which generally followed the process and subject matter described in the

Seidman (2006) process, but only lasted for about 45 minutes to an hour apiece.

Screen-Capturing Hashtag-Based Discussion Forum Posts

The participants' Twitter hashtag-based discussion posts were captured for data analysis

and turned into documents. The program Zotero was used because it could take screen captures

of websites with infinite scrolling. Screen captures of the discussion forum posts were taken

throughout the semester in case students deleted their social media accounts and/or posts.

Because of the ever-changing nature of the way Twitter exports data, the participants' posts

needed to be captured quickly, so that outside users did not influence the data. A customized

computer program, designed specifically for use in this study, was used to take the data from the

screen captures and add them to the statistical software R* where the statistical data were

exported to Excel for data analysis. All identifying data such as usernames were removed from

the posts at this time, and the hashtag was changed to "#techclass" in this research to provide

anonymity to the participants.

Data Analysis

For both quantitative and qualitative data, the constant comparative process (CCP) was

the primary form of data analysis. The constant comparative analytic process (also known

colloquially as an "approach" or "method" instead of a "process") is associated with the qualitative tradition of grounded theory, introduced as a means of data analysis by Glaser and Strauss (1968). Much like grounded theory itself, CCP was an attempt to bring a systematic, post-positivist approach to the analysis of diverse data sets, at a time when positivism was the dominant research paradigm (Butler-Kisber, 2009; Creswell, 2006; Glaser & Strauss, 1968; Merriam, 2002).

In CCP, as laid out by Glaser and Strauss (1968), the grounded theory researcher compares meaningful pieces of data against one another throughout the data analysis process (Merriam, 2002). The data are coded, and these codes are grouped together into broader categories, and theories are generated that are grounded in the data (Charmaz, 2006; Creswell, 2006). A key facet of this type of analysis is that it is not guided by pre-existing hypotheses: these codes, categories, and theories emerge inductively rather than deductively (Charmaz, 2006). The reason this data analysis approach is called "constant comparison" is that the comparison between data is happening at all stages of the analysis process (Merriam, 2002). This is similar to the phenomenological tradition of horizontalization, meaning that all data are weighed equally against one another (Creswell, 2006; Merriam, 2002; Moustakas, 1994).

Coding is an essential process of the constant comparative process, and it follows a set analysis path, as codes become categories, which then become theories (Creswell, 2006). During initial coding, the researcher looks for substantive statements in the text, checking the codes against each other to develop new codes (Creswell, 2006; Merriam, 2002). The next stage is axial coding, wherein the codes are grouped into categories that attempt to explain the central phenomenon (Creswell, 2006; Merriam, 2002). Finally, in selective coding, the categories are grouped together into propositions, then gathered into a conditional matrix, a diagram that

connects the central phenomena to the categories (Creswell, 2006). From these final propositions, rich textural and structural descriptions will be generated to examine the "essence" of the phenomenon or case being studied (Creswell, 2006; Merriam, 2002; Moustakas, 1994).

This process was conducted on the qualitative data retrieved from the surveys as well as from the interviews, in the qualitative coding software NVivo. Quantitative data from Excel were also imported into NVivo as a reference during the process. Even though the data were quantitative, responses to the two surveys were considered against the qualitative data in order to determine if themes and propositions emerged. Figure 4 shows the general progression of the

Survey data, interviews, and artifacts

Categories

Proposition

Initial Coding

Axial Coding

Selective Coding
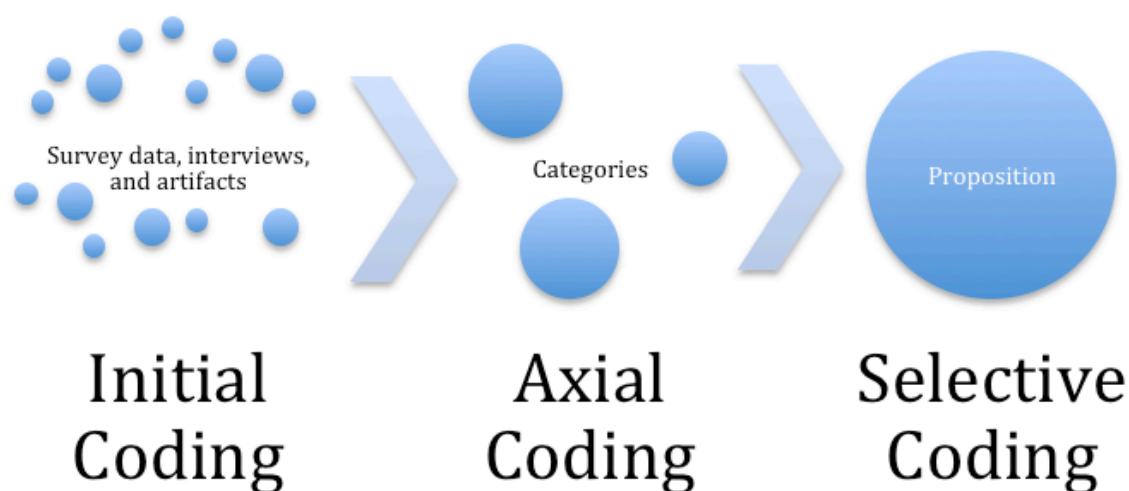
constant comparative process, and an example of the coding process is shown in Appendix I.

Figure 4. A general overview of the constant comparative process.

Quantitative Data Analysis

The survey data from the TUS, IMI, and SIS were analyzed using basic descriptive statistics. The main portion of the TUS data was the technology usage question, which generated

ordinal level data, unable to be analyzed alongside the Likert scale data of the IMI and the SIS. The grand mean of each subscale of the IMI and SIS were used as a shorthand comparison tool between the subscales, though, the grand means are not able to be analyzed against one another as the subscales featured different numbers of questions, even within the same surveys.

The screen captures of the posts were also analyzed for basic descriptive statistics, looking for the following aspects of the data: character count, number of "favorites," number of "retweets," posting date and time, and whether or not pictures or links were attached.

Schedule and Feasibility

This study took place over the course of a semester in one section of an introduction instructional technology course. The course instructor and I monitored the assignment.. The data gathering took place during the course of the semester and data analysis took a few months afterwards. From a cost perspective, this study was not impractical, with few costs beyond travelling to interviews and the costs of the data analysis software. Some logistical problems were encountered in getting participants to take the surveys and arranging and conducting the interviews afterward.

Assumptions

This study used survey data and assumed that the participants gave accurate and open responses to the questions on the survey. It also assumed that both the TUS and the IMI/SIS measured what they intended to measure. The TUS measured the current and previous technology experience of the student participants. The IMI purported to measure the intrinsic motivation of participants concerning a specific task. The SIS measured various social influences on social media adoption and usage rates. This study also assumed that participants were giving honest and accurate responses to questions in surveys and interviews.

Summary

The participants for this research were undergraduate students in an educational technology course at a large Southeastern university. The course took a blended classroom approach, and online class discussions were held via Twitter hashtag instead of a typical LMS. The participants were asked to post 40 tweets to the course hashtag over the semester, and these tweets were screen-captured for data analysis. Basic descriptive statistics were generated from the screen captures of the posts to the Twitter hashtag.

The participants were surveyed before the semester using the TUS to gauge their social media and technology usage, as well as their pre-existing beliefs and attitudes toward Twitter, hashtags, online discussion forums, and social media usage in educational settings. After the semester, the participants completed the IMI and SIS, two surveys gauging the intrinsic motivation and effects of social influence on the participants during the hashtag-based discussion. These findings are discussed later in Chapter 5.

Four of the participants consented to interviews, which represented about one-fifth of the total participants. These interviews were conducted using a semi-structured interview protocol, included in Appendix H, in a condensed process similar to one recommended by Seidman (2006). The interview and qualitative survey data were coded using the software NVivo and then analyzed according to the Constant Comparative Process, looking for emergent codes, themes, and, ultimately, propositions. These findings are discussed later in Chapter 6.

CHAPTER IV

SURVEY RESULTS

The purpose of this study was to investigate the motivational effects on an online discussion forum when it was moved from an institution-supported Learning Management System (LMS) to a social media-based Personal Learning Environment (PLE). A total of 19 participants in one section of a blended learning classroom engaged in a required class discussion through the use of a designated Twitter hashtag (#techclass), which would allow their tweets (comments) to be grouped together within the social media site. The research questions in this study were as follows:

a) How do participants engage in the hashtag discussion assignment?

b) What motivational and social influence factors affect participants' activity when they post to the Twitter hashtag?

c) How do previous experience with and attitudes toward social media and online discussion forums affect student motivation in the hashtag-based discussion forum?

Three survey instruments were used to answer the research questions. The first, the Technology Usage Survey (TUS), was administered to the participants at the beginning of the semester. Two additional surveys were administered at the end of the course: the Social Influence Survey (SIS), and the Intrinsic Motivation Survey (IMI).

Technology Usage Survey

The Technology Usage Survey was administered at the beginning of the course in order to get an initial understanding of the participants' individual technology usage patterns. It was

adapted from a similar survey the course instructor administered in previous semesters in order to adapt assignments to the students' interests and aptitudes in certain technologies. In past surveys, results of the TUS were used to determine how best to reach students via social media, and to avoid redundancy in the introduction of social media tools and techniques during the course. In addition to collecting data on how frequently participants use certain technologies, the TUS also asked questions about the participants' familiarity with and perceptions of LMS-based online discussion forums, and their attitudes toward the use of social media in education.

Survey Participants

A total of 16 participants responded to the survey. The participants were enrolled in one section of an introductory instructional technology course at a large, southeastern university. All of the participants fell into two age ranges: nine reported being between the ages of 18-20, and seven were between the ages of 21 and 23. Because there was not a wide range of ages reported, age was not considered as a factor for this research.

Social Media and Technology Usage

Participants mapped the frequency of their technology usage on an ordinal grid, similar to a Likert scale. Because usage patterns for different technologies vary widely, a scale was chosen that divided the continuum into descriptive categories, from lowest to highest patterns of frequency. The lowest amount of usage was "Never," followed by "Less than Once a Month," "Once a Month," "2-3 Times a Month," "Once a Week," "2-3 Times a Week," and "Daily." "Daily" was the most frequent pattern of technology usage. Each frequency group was coded from one (1) to seven (7), respectively, with "1" representing "Never" and "7" representing "Daily." Descriptive statistics were used to report these findings, and the results are shown in Table 2.

Table 2

Social Media Usage Based on the Technology Usage Survey

Question	Never	Less than once a month	Once a Month	2-3 Times a Month	Once a Week	2-3 Times a Week	Daily	Total Responses	Mean
iPhone/Android/Windows Phone/other smartphone	0	0	0	0	0	0	16	16	7.00
Facebook	0	0	0	0	0	2	14	16	6.88
Snapchat	1	0	0	1	1	2	11	16	6.19
Instagram	1	1	0	0	1	0	13	16	6.19
YouTube	0	0	0	1	3	6	6	16	6.06
Gmail	2	0	0	1	3	1	9	16	5.63
Learning Management System (e.g. eLC/Blackboard/Canvas)	3	0	0	0	2	4	7	16	5.38
Twitter	3	4	1	0	0	2	6	16	4.25
Wikipedia	2	3	1	1	3	4	2	16	4.25
Pinterest	3	2	1	3	2	0	5	16	4.19
Dropbox	3	1	2	3	3	1	3	16	4.06
Google Docs	4	0	2	2	4	2	2	16	4.00
iPad/Kindle Fire/Nexus/other tablet	6	1	1	1	0	2	5	16	3.88
Google Drive	8	1	0	1	2	2	2	16	3.13
Skype/Google Hangouts/video chat	2	7	2	2	0	1	2	16	3.13
Vine	6	4	0	3	1	2	0	16	2.69
Adobe Creative Cloud/Photoshop/Illustrator/etc.	9	2	1	1	0	1	2	16	2.50
Wordpress	10	2	0	1	2	1	0	16	2.13
Other	13	1	0	0	0	1	1	16	1.75
Kindle/Nook/eBook	13	1	0	0	0	2	0	16	1.69
Tumblr	13	1	0	1	0	1	0	16	1.56
Blogger	13	1	0	2	0	0	0	16	1.44
Reddit	14	1	0	0	1	0	0	16	1.31
Podcasts	14	2	0	0	0	0	0	16	1.13
Flickr	15	1	0	0	0	0	0	16	1.06
Digg	16	0	0	0	0	0	0	16	1.00

Technologies listed in the survey were chosen from previous instructor experience and were meant to represent a balance between physical technologies like phones and ebooks, communication apps like Snapchat and Gmail, and social media sites like Facebook and Pinterest. LMS usage was also included to determine how often participants accessed course online materials. Notable technologies not included in the survey were YikYak and GroupMe, two social media apps that were mentioned by a few participants in the "Other" category. (Due to the reported popularity here, it is recommended that these apps will be included in future iterations of the survey.)

The technologies with the highest reported usage rates were smartphones and mobile platforms. All of the participants who responded to the survey reported using their smartphones daily. Participants also reported using the mobile platforms Facebook and Instagram almost daily, with reported means of 6.88 and 6.19 respectively. The survey results also indicated high usage of YouTube (mean of 6.06), which was the only technology other than Facebook and smartphones that 100% of the participants reported using at least once a month.

Snapchat, the photo and video messaging service that deletes transmissions after a few seconds, had high levels of reported usage, with a mean of 6.19 and 11 participants who reported daily use. Gmail, the Google-based email service, and productivity apps Google Docs and Dropbox all showed fairly high levels of usage, with reported means between 4.00 and 5.63. Gmail was the most often used technology of that group, with nine participants reporting daily usage.

Participants reported using video chatting services at fairly low levels. Only 69% of participants who responded to the survey reported using Skype, Google Hangouts, or some other version of video chat once a month or less, including two participants who responded "Never."

In an open-ended response, one participant noted that he or she used Skype during a long-distance relationship, but felt less need to use it once the relationship ended. The lowest reports of usage were for older technologies, like Flickr and Digg; blogging platforms, like Tumblr, Wordpress and Blogger; Podcasts; Reddit; and Vine.

One notable result was the participants' reported usage of Twitter. During the planning stages for the course curriculum and this research, Twitter was chosen based on its perceived importance in the lives of young people. The results of the Technology Usage Survey indicated, however, that mean Twitter usage among participants was 4.11, or between "2-3 Times a Month" and "Once a Week." These results show that Twitter actually ranked lower in usage than several other forms of social media, including Facebook, Snapchat, and Instagram. Further examination of the data reveals a clear divide between frequent users and non-users. Of the participants who responded, 50% reported using Twitter "2-3 Times a Week" or "Daily," while the other 50% used it "Once a Month" or less often. Zero participants reported using Twitter "2-3 times a Week" or "Once a Week," as the resulting mean might suggest.

Previous Experience with Online Discussion Forums

Participants who completed the survey were asked a number of simple questions to determine their previous level of experience with online discussion forums. Because this was a blended classroom at a university that primarily teaches in a face-to-face format, I thought that a lack of experience with online courses or online discussion forums could have an influence on the participants' perceptions of these forums, as well as their motivation to engage in them.

The participants were asked the question "Have you ever participated in an online discussion forum in an educational setting?" As shown in Table 3, 84% of the participants said "yes," while 16% said "no." The participants who answered "yes" were asked to fill out a short

Likert scale survey to get additional data regarding their perceptions of online discussion forums. Table 4 summarizes the responses to those additional questions. It is important to note that two students who selected "no" went on to describe their perceptions of online discussion forums. Those responses were not included in Table 4, given that the students had no prior experience with online discussion forums before answering the questions.

All of the statements in the survey that related to student perceptions of online discussion forums were written in a positive tone (e.g. "I like participating in online discussions."). Students were asked to note their level of agreement or disagreement with a positive statement about online discussion forums and education. The students reported mixed feelings about online discussion forums. The overall mean of the responses was 2.94, effectively equivalent to a neutral rating.

Table 3

Responses to the Question "Have you ever participated in an online discussion forum in an education setting?" from the Technology Usage Survey

Answer	Response	Percent
Yes	16	84%
No	3	16%
Other	0	0%
Total	19	100%

Table 4

Participant Perceptions of Online Discussion Forums

Question	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total	Mean
I like it when a class requires me to participate in an online discussion forum.	2	5	6	3	0	16	2.63
I like it when an online discussion forum is part of a class.	1	1	5	8	1	16	3.44
I like participating in online discussions.	1	2	7	6	0	16	3.13
I participate in online discussions and chat forums outside of an educational setting.	4	8	1	3	0	16	2.19
Online discussion forums help support my learning in online classes.	0	5	2	7	2	16	3.38

When an online forum was described as "required," the responses from participants were mixed. The mean for the question "I like it when a class requires me to participate in an online discussion forum" was 2.63, almost halfway between "Neither Agree nor Disagree" and "Disagree." Only three participants agreed with the statement and no participants strongly agreed. The mode was the statement "Neither Agree nor Disagree" with six participants selecting it, but it is important to note that the statement "Disagree" was chosen by five participants.

When the "required" nature of the assignment was omitted from the question, participants had a slightly more positive view of the use of online discussion forums in class. When presented

with the statement "I like it when an online discussion forum is part of a class," the mean was 3.44, nearly halfway between "Agree" and "Neither Agree nor Disagree." Eight participants selected the mode of "Agree" in response to the previously mentioned statement, indicating a more positive response than to the version that included the "required" designation. This suggests that participants had more antipathy toward the "required" aspect of online discussion assignments than they did toward the concept of online discussions themselves.

Furthermore, participants reported mixed feelings about online discussions in general. The statement "I like participating in online discussions" was met with mixed results, with a mean of 3.13. Seven participants "agreed" with the statement and six participants "neither agreed nor disagreed." There were three negative responses. As discussed later in the interviews, it may be that "online discussions" are viewed as online debates and hold negative connotations.

The widest variation in responses were to the following statements: "I participate in online discussions and chat forums outside of an educational setting" and "Online discussion forums help support my learning in online classes." Participants responded negatively on the first statement (mean=2.16), with a total of 12 of the 16 responses as "Strongly Disagree" (4) and "Disagree" (8), suggesting that most participants don't have online discussions or use chat forums outside of the classroom. This does not align with the response to the previous statement, where participants reported more positive feelings about online discussions. It is possible the phrase "chat forums" complicated the question, as that term can be applied to specific places on the Internet where people go to chat with like-minded individuals (e.g. Reddit). Given the low level usage of chat rooms and forums reported in the Technology Usage Survey, it could be that participants do not perceive online discussions negatively, but perceive "chat forums" differently.

Participants' responses varied the most on the second statement of the survey: "Online discussion forums help support my learning in online classes." Five participants disagreed with this statement and seven agreed, resulting in the largest variance of any of the responses. While a mean of 3.38 could seem to indicate a neutral response, in fact, this statement generated a bimodal response on the survey.

Open-ended Questions About Online Discussion Forums

A number of open-ended questions were asked in the Technology Usage Survey about online discussion forums and how participants felt about them. The full list of participant responses is shown in Appendix C and indicates a wide range of beliefs about online discussion forums. In general, the responses trended toward the negative. This was possibly complicated by the lack of a definition of the term *online discussion forum* in the survey.

When polled about their general attitude towards online discussions, participant responses were mixed. About half of the responses included some negative commentary with some particularly strong responses, such as "I feel they are a waste of my time that I do not have," and "I don't have much interest in them and I have never found them very engaging." A number of the responses were mixed, with some containing positive statements that cited ease of use and the ability to connect to people outside of class. In one comment, a participant pointed out that online discussions were the dominant form of communication among students and that this might be helpful: "Seeing as how it is how most people communicate, it is more likely that students will keep up with their studies."

One cannot draw the conclusion from the data that online discussion forums are popular, as even the positive statements about them also highlight the major problem of low or ineffective participation, as this example demonstrates: "Online discussion forms can be extremely

beneficial to class participation if people respond more with 'Great post. I agree with your idea.'"

Interest level – and possibly competency – also affects student participation in discussion forums, as demonstrated in this participant's comment: "I am indifferent about them. If I know what we are discussing then I am fine with participating. If I don't know the topic then I prefer to not talk about it."

The forced conversations were unappealing to some participants, who found the requirements "really annoying," causing people to "literally [make] up things to write" and to leave "non-useful comments." The sentiment expressed in many of these statements was that low participation levels make it hard to generate conversation that "flows naturally," and that required levels of discussion result in many people posting low quality discussion comments. This participant's comment is a good example of the mixed feelings reported toward online discussion forums:

> I like online discussion boards because I am not usually the type of person to share my opinions in class, so I like to be able to share my opinions in an online forum. I don't like when teachers require ridiculous amounts of online discussion posting to the point where students are literally making up things to write. It is better when the conversation flows naturally and is enjoyable for all involved.

These data support findings from previous research regarding online discussion forums and their mixed views on online discussion forums (Vonderwell, 2003; Vonderwell & Zachariah, 2005).

Questions About Hashtags

The final question on the survey asked about hashtag usage: "Are you familiar with hashtags and hashtag use in social media?" Only one participant responded "no," indicating that a basic knowledge of hashtags existed among the participants.

However, while participants reported being aware of hashtags, an open-ended question revealed more ambivalent thoughts about them (see Appendix D). Participants were asked, "What are your general attitudes toward hashtag usage in social media, if any?" This question yielded a wide range of responses, from the positive ("I love hashtags…") to the negative ("annoying" was mentioned twice). Participants reported fairly positive feelings about hashtag use, highlighting the humorous usage of them ("I think they are funny.") and their ability to connect people around events and topics. One participant noted, "I am not a big hashtag user, but when I have been curious about world events, etc. I will sometimes type in a hashtag on twitter to read what other people are saying about it."

The connective aspect of hashtags was one of the most often-mentioned positive attributes. Six of the participants mentioned some variant of the idea that hashtags "connect" people and build communities. One participant focused on the organizational aspects of hashtags: "…when they are used to actually categorize the social media that they are using I love it. It makes things way more organized and easier to find things relevant to what I am searching for."

The most negative responses to hashtag usage on Twitter involved the perception of "incorrect" or over usage. In an otherwise positive response, one participant wrote "I think it is really annoying however when people don't know how to use them and hashtag every single word. like what? no." Another response noted that "[s]ometimes people use too many hashtags in

regards to their post, which can make them annoying." Though hashtags originated on Twitter, many social media platforms, including Facebook, Instagram, Tumblr, Vine and more, use hashtags to create ad hoc connections. One participant suggested that hashtags were fine for certain social media and not for others: "I think that they should only be used on twitter or instagram, not Facebook." Another participant suggested that hashtags had come and gone as a fad: "I used to love them, and I've slowly grown out of them. It depends on what it is about."

This research did not investigate social mores and folkways regarding hashtag usage, but such issues emerged throughout the research, along with the ideas of the different meanings and behaviors implicitly carried by "likes," "favorites," "reblogs," "shares," and "retweets."

Open-ended Question About Social Media Usage in Education

Participants were polled about their general attitudes toward the use of social media in education. Fifteen participants responded to these questions, and the responses are shown in Appendix E.

Though there were some comments indicating ambivalence, participants seemed generally positive about the idea of social media being used in education. In fact, four of the negative comments about social media usage in educational contexts were part of statements that also contained positive sentiments, such as "Depending on the setting it can be very useful, but it also is not always necessary or useful" or "I don't think social media is necessarily effective in education, but I believe it is important for creating important connections." Most of the participants reported that social media usage in education had some benefit and value, exemplified in statements like "I think that social media is such an integral part of our world that using it in education is a must!" as well as it being referenced as a "good source," "asset," and something "beneficial."

One concern raised in several responses was that of privacy, sometimes characterized as professionalism or security concerns. One participant addressed these concerns as follows:

I think that it can be very beneficial. It is a great way to connect with students and keep them up to date with assignments. Also, it makes it easier for students to get into contact with their teachers and/or other students. However, I think people have to keep in mind that they are on a social media site and that everyone can see what they are posting or sending to their teachers and/or others on the social media site.

Of small note is that two participants referenced social media as a good way to remind each other about assignments. This theme of different social media usage for different individuals emerged later, as well. Individual students may expect to use social media tools very differently in different educational contexts.

Statistical Analysis of the Tweets

Every tweet posted with the hashtag #techclass during the Fall Semester, 2015, from August until December, was captured using the bibliography program Zotero. Zotero captured HTML screenshots that were then converted into data. These data were processed using the statistical program R, which generated both quantitative and qualitative data from the text of the tweets. The following information was collected from the tweets: Twitter usernames and handles; the number of tweets per student; the number of favorites, likes, retweets, and replies for each tweet; the actual content of each tweet, including the hashtag(s) used; hyperlinks and photos used in each tweet; character counts for each tweet; and the time and date of each tweet.

A complicating factor affecting the Twitter data collection was that a number of other sections of the same course – in addition to the course section documented in this study – used the #techclass hashtag. Because of this, the number of tweets recorded was higher than

anticipated when the study began. In addition, the instructors and assistants for each section

engaged with the hashtag and student tweets as well, accounting for many of the favorites, likes,

and retweets of their students' posts. Early in the semester, the course instructors found there was

not much activity surrounding the hashtag #techclass, and adjusted the assignment to increase

student participation. In several class sections, instructors assigned a new "class tweeter" at each

class meeting, in an attempt to create more discussion. This alteration of the assignment was not

anticipated, and the research shows that the "class tweeter" role had little impact on participation

in the hashtag assignment.

Since all tweets were made publicly, the entirety of the tweets from all of the course

sections using the hashtag #techclass were considered for the purposes of this study, including

the tweets of the participants who responded to the research surveys. The large number of total

tweets collected provided a greater representation of how students engaged overall in the hashtag

assignment, particularly as it related to the development of back-and-forth conversations between

the students. It also provided a clearer indication of whether or not a community was built

through use of the hashtag.

There were 1087 total tweets that used the #techclass hashtag during the course of this

research, and a total of 114 individual Twitter accounts (or handles) engaged with the hashtag.

Any class-related tweets that did not use the hashtag were not included. A summary of the

collected Twitter data is represented in Table 5.

Tweets per Participant

The average number of posts per Twitter user was 9.37, close to the assignment's

requirement of 10 postings per student for the semester. However, that number does not reflect

how little most participants engaged with the hashtag. While some participants (and instructors)

posted as many as 47 tweets, the median number of posts was four and the mode was one, meaning that more participants tweeted once and then never again.

Table 5

Descriptive Statistics for Tweets Posted by All Participants Using the Hashtag

Total tweets	1087
Used another hashtag	114
Mean number of posts	9.370689655
Mode number of posts	1
Median number of posts	4
Posted pictures	229 or 21.04%
Linked to outside pages	84 total or 7.72%
Average character count	63.19
Mode character count	58
Median character count	61
"Zeros": nothing but a link or picture	11
Mean number of "favorites" per post	1.0009
Median number of "favorites"	1
Mode number of "favorites"	1
"Favorited" posts	71.67%
Most number of "favorites" on a single post	6
Mean number of "retweets" per post	0.13
Median number of "retweets"	0
Mode number of "retweets"	0
Retweeted posts	9.29%
Most number of retweets on a single post	4
Total replies	0

Character Counts

Every tweet on Twitter must be 140 characters or less, though links and long text can be shortened using special tools. The hashtag for this class took up nine characters plus a space, so the most characters a participant could use in their tweets were 130. Hyperlinks were not counted as "characters" for purposes of this study, so only the text the participants wrote themselves was included in the character count. The average character count was 63.19 and the median was 61, both less than half of the available 130-character maximum. Eleven tweets contained nothing more than a link or photo and the hashtag, technically counted as zero characters according to the rules for this study.

Photos, Links, and other Hashtags

Photos were a popular inclusion in the participants' tweets. About one-fifth, or 21.09% (229 total) of the posts contained a photo, most of which were taken in class while working on a project or activity, or while a guest speaker was present. Given the participants' reported frequent use of photography-based social media such as Instagram and Snapchat, and their daily use of smart phones, these findings are not surprising. In an assignment that often lacked direction, pictures may have seemed like a fallback to many participants, given that they had cameras in their smartphones and could take photos from within Twitter.

Only 7.72% of the hashtagged tweets linked to other websites, and 114 of the tweets used a hashtag in addition to #techclass, most commonly including a hashtagged acronym for the college where the study took place.

Favorites, Retweets, and Replies

"Favorites" on Twitter are similar to "Likes" on Facebook and Instagram, in that they typically serve as approval of a posting or comment, though that definition can vary somewhat

from user to user. On Twitter, these "favorites can be more of an acknowledgment, as Karen said in her interviews. Because 71.67% of the tweets received at least one favorite, it might seem there was a lot of this type of interaction between participants on the Twitter page. However, most tweets only received one favorite, and a majority of the favorites came from a single instructor in one course section.

"Retweets" involve reposting someone else's tweet to one's own feed. When Twitter users see a tweet from someone they follow, they can "retweet" it to their own feed, so their own followers can then see it. A retweet includes the original poster's Twitter handle, so the original source receives attribution. The percentage of retweeted posts was much lower than the percentage of favorited tweets. Only 9.29% of the participants' tweets were retweeted, and most were only retweeted once. The most any tweet was retweeted was four times.

"Replies" occur when a Twitter user responds to an original poster with a tweet of his or her own. Replies always begin with the intended recipient's Twitter handle, and the functionality of Twitter allows users to view replies between handles as a conversation. A total of zero (0) replies was reported in the 1087 tweets recorded for this study. Even though this research did not set out to examine the difference between favorites, retweets, and replies, it is clear they may mean different things to Twitter users.

Rubrics

Originally, the collected tweets were going to be analyzed using quantitative and qualitative rubrics developed by Wiley (2002), Benigno and Trentin (2000), and Waters (2006) to analyze threaded discussions. Waters' *Synthesized Rubric and Emergent Qualitative Themes for Determining Mean Qualitative Measurement* (2006) was developed and validated as a synthesis of quantitative and qualitative rubrics used to judge the quality of threaded online

discussion posts. This rubric rates interactivity, grammar and spelling, and timeliness, to generate a Mean Qualitative Measurement (MQM), a quantitative-qualitative measure of post "depth" and "quality." Though some of the collected tweets succeed in terms of grammar, spelling, and timeliness, very few met even the lowest bar – an "F" rating – for interactivity, defined as follows:

> Student never takes a leading role in discussions; never demonstrates knowledge of content; never includes outside references; never works to synthesize other's comments; never posts on topic questions; never makes comments that generate good conversation or new possibilities. (Waters, 2006, p. 68)

The MQM portion of the Waters' rubric evaluates posts on a scale of "High," "Medium," and "Low," with "High" being thorough replies that generate further discussion and "Low" being so-called "drive-by postings" with simple phrases such as "good job" or "great comments." Because no replies or discussions were generated, and because so little interactivity was recorded between Twitter users, it was difficult to rate any of the tweets as anything more than a "Low."

Wiley's MRD measure and the rubric used by Benigno and Trentin (2000) also rely on analyzing replies for quality and depth of discussion. The two rubrics are included in Appendix G but ultimately proved of little value in analyzing the collected tweets. Because there was such little interactivity between the participants in the course, as evidenced by the total lack of replies and low number of retweets, every single recorded tweet would have received nearly the lowest score on all of the selected rubrics.

The Intrinsic Motivation Inventory and Social Influence Survey

The Intrinsic Motivation Inventory and Social Influence Survey were administered to participants via the online survey tool Qualtrics during the last face-to-face class of the semester.

The two surveys were administered together because of the similarities in what they measured and how they were constructed. Both surveys asked participants to rate the veracity of statements related to their feelings about the Twitter hashtag assignment. Responses were recorded on a Likert scale from 1 to 5, with 1 representing "Not At All" and 5 representing "Very True." A number of statements were "reverse" statements that asked for a negative response from participants. For clarification, those statements have been modified below, reversing the scores so that they align with the positive statements.

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Intrinsic Motivation Inventory

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The Intrinsic Motivation Inventory (IMI) used in this research is a variant of the Post-Experimental Intrinsic Motivation Inventory, found on Deci and Ryan's Self-Determination Theory website[1]. This version of the IMI features 45 questions regarding an activity – in this case, the class hashtag assignment – wherein the participants self-report their motivation. The IMI is broken up into a number of subscales, with each subscale representing a dimension that might influence motivation: Interest/Enjoyment; Perceived Competence; Effort; Value/Usefulness; Pressure/Tension; Perceived Choice; and Relatedness. Deci and Ryan (2015) noted that only the Interest/Enjoyment subscale measures self-reported intrinsic motivation. The other subscales represent something that might be a predictor or influencer of intrinsic motivation. Perceived Competence and Perceived Choice are thought to be indicators of intrinsic motivation, while effort might have some effect as well (Deci & Ryan, 2015). The Value/Usefulness subscale is connected to the idea of internalization (Deci et. al, 1994), wherein

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[1] http://www.selfdeterminationtheory.org/

people self-regulate when involved in activities they find personally valuable or useful. (Internalization is also measured in the Social Influence Survey, appended to the IMI and discussed later.) Pressure and Tension have been seen as having a possible negative effect on intrinsic motivation. Relatedness, along with Perceived Competence and Perceived Choice, are used to measure core intrinsic needs of SDT (Deci and Ryan, 2015).

Several statements in the survey affirmed a negative, such as "I didn't try very hard to do well at this activity" in the Effort/Importance Subscale. A response of "Very True" would mean that the participant did *not* try very hard in the course, unlike this question from the same subscale: "I put a lot of effort into this." For clarity, these "reversed" statements have been marked with an *R* designation where applicable. These statements have had the mean reversed according to Deci and Ryan's instructions, and these reversed means are listed as an "adjusted mean." Adjusted means were used to calculate the grand means of each subscale.

Interest/Enjoyment Subscale

There were seven questions in the Interest/Enjoyment subscale, all related to the participants' interest in and enjoyment of the hashtag discussion activity. The grand mean of this subscale was 3.46. The responses to all of the questions from this subscale are summarized in Table 6.

The two statements with the highest adjusted means were the two negative statements. Of the 18 participants who completed the survey, 17 selected "Not At All" (7) or "Not Very True" (10) in response to the statement "This activity did not hold my attention at all," resulting in a mean of 1.72, adjusted to 4.27. Participants reported similar responses to the statement "I thought this was a boring activity," which had an adjusted mean of 4.00.

Table 6

Responses to the Interest/Enjoyment Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I enjoyed doing this activity very much.	2	2	8	3	3	3.17	3.17	3.46
This activity was fun to do.	2	0	7	6	3	3.44	3.44	
I thought this was a boring activity. *R*	7	7	2	1	1	2.00	4.00	
This activity did not hold my attention at all. *R*	7	10	0	1	0	1.72	4.27	
I would describe this activity as very interesting.	2	0	8	6	2	3.33	3.33	
I thought this activity was quite enjoyable.	2	0	5	9	2	3.50	3.50	
While I was doing this activity, I was thinking about how much I enjoyed it.	3	7	5	2	1	2.50	2.50	

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

While the participants reported that the activity held their attention, they did not rate it as fun or enjoyable. The responses to direct questions about enjoyment resulted in neutral-to-slightly positive feedback. "I enjoyed doing this activity very much" rated a mean of just 3.17, with most of the participants (mode: 8) selecting "Somewhat True." A similar question "I thought this activity was quite enjoyable" had a mean of 3.5 with a mode of 9, indicating that statement was "Mostly True." The lowest mean was recorded in response to the statement "While I was doing this activity, I was thinking about how much I enjoyed it." Fifteen participants rated this statement "Somewhat True" or lower, meaning they did not seem to enjoy – or at least think about their own enjoyment – of the activity while they were doing it. Questions

about whether the activity was fun – "This activity was fun to do." – or interesting – "I would describe this activity as very interesting." – earned slightly more positive means of 3.44 and 3.33, respectively, with "Somewhat True" still being the most frequently chosen response.

Because the Interest/Enjoyment scale is the closest measure to self-reported intrinsic motivation in the IMI, it might be inferred that intrinsic motivation levels were not very high for this assignment. Self-reporting often overstates the level of intrinsic motivation of the participant, and, even if this were a factor, the grand mean of the subscale suggests only slightly positive levels of self-reported intrinsic motivation.

Perceived Competence Subscale

The Perceived Competence subscale (see Table 7) of the IMI aligns with the competency piece of SDT. These survey items attempt to measure how competent participants felt while doing this activity, whether they felt they knew what they were doing and were good at it. The grand mean for the subscale was 3.69, suggesting that they felt fairly competent during this activity.

The statement that received the strongest response was another reversed (*R*) statement: "This was an activity that I couldn't do very well." The adjusted mean for this statement was 4.39, and 17 of the 18 participants said "Not At All" (8) or "Not Very True" (9) for this statement. Participants reported mixed-to-positive feelings of competency toward this assignment in most of the other items, as shown in Table 7. Overall, they reported feeling fairly competent in the activity, though when asked to compare themselves to other participants – "I think I did pretty well at this activity, compared to other students" – the mean dropped to 3.00, and the responses were distributed evenly throughout, with the mode of 6 being "Somewhat True."

Table 7

Responses to the Perceived Competence Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I think I am pretty good at this activity.	0	3	5	7	3	3.56	3.56	3.69
I think I did pretty well at this activity, compared to other students.	1	5	6	5	1	3.00	3.00	
After working at this activity for a while, I felt pretty competent.	0	2	5	8	3	3.67	3.67	
I am satisfied with my performance at this task.	0	1	5	9	3	3.78	3.78	
I was pretty skilled at this activity.	1	0	6	7	4	3.72	3.72	
This was an activity that I couldn't do very well. *R*	8	9	1	0	0	1.61	4.39	

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

Effort/Importance Subscale

The Effort/Importance subscale of the IMI asked for responses regarding statements related to the effort the participants put into the hashtag activity, as well as how important it was to them to do a good job on the activity. As can be seen in Table 8, the responses to this were again neutral.

The grand mean of 3.33 is neutral ("Somewhat True") for all of these statements. Once again, one of the reversed (*R*) statements drew the strongest response: "I didn't try very hard to do well at this activity" had an adjusted mean of 3.89. Another – "I didn't put much energy into this" – had an adjusted mean of 3.33 and 17 participants responded either "Not Very True" or "Somewhat True." When asked about effort specifically, the responses were neutral. "I put a

lot of effort into this" had a mean of 2.94, with 11 of the 18 participants selecting "Somewhat

True" or lower. Similarly, "I tried very hard on this activity" had a mean of 2.89. When asked

about the importance of the activity – "It was important to me to do well at this task" – the

responses were more positive, with a mean of 3.61 and a high mode of nine (9) for "Mostly True."

Still, the lack of self-reported effort aligns with the observations made earlier about the tweets.

Table 8

Responses to the Effort/Importance Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I put a lot of effort into this.	1	6	4	7	0	2.94	2.94	3.33
I didn't try very hard to do well at this activity. *R*	3	10	5	0	0	2.11	3.89	
I tried very hard on this activity.	3	2	8	4	1	2.89	2.89	
It was important to me to do well at this task.	2	2	1	9	4	3.61	3.61	
I didn't put much energy into this. *R*	0	8	9	0	1	2.67	3.33	

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

Pressure/Tension Subscale

As evidenced by the low grand mean of 1.76 (see Table 9), this subscale yielded the

strongest opinions. Of important note is that this subscale measures the amount of pressure and

tension felt during the activity, so responses in the affirmative mean more pressure and tension.

Because of this, the low grand mean of 1.76 signifies that participants felt very little pressure and

tension during the hashtag activity. It might be argued that their lack of motivation was because

they felt so little tension and/or pressure. Low levels of anxiety (1.44), external pressure (1.67),

tension (1.61), and nervousness (2.06) were reported, and participants felt relaxed in the assignment (adjusted mean of 2.00).

Table 9

Responses to the Pressure/Tension Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I did not feel nervous at all while doing this. *R*	1	2	1	7	7	3.94	2.06	1.76
I felt very tense while doing this activity.	8	9	1	0	0	1.61	1.61	
I was very relaxed in doing these. *R*	0	1	2	11	4	4.00	2.00	
I was anxious while working on this task.	11	6	1	0	0	1.44	1.44	
I felt pressured while doing these.	8	9	0	1	0	1.67	1.67	

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

From Table 9, it might be inferred that pressure and tension did not account for any negative effects on intrinsic motivation, though the low level of pressure and tension might have led the assignment to seem of low consequence, accounting for the lack of importance displayed in Table 8, and, therefore, the apparent lack of motivation displayed in the actual tweeting of the participants.

Perceived Choice Subscale

The Perceived Choice subscale (Table 10) of the IMI aligns with the core value of autonomy in Social Determination Theory (SDT), as well as concepts like locus of control and attribution in similar motivation theories (Pintrich & Schunk, 2002; Rotter, 1966, 1990; Schunk,

1991). If participants do not have a perception of having autonomy over their actions during an activity, it might dampen intrinsic motivation. In this case, autonomy and choice might concern both the content of the post and the choice of the social media assignment itself.

Table 10

Responses to the Perceived Choice Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I believe I had some choice about doing this activity.	3	2	4	7	2	3.17	3.17	2.96
I didn't really have a choice about doing this task. *R*	1	6	5	4	2	3.00	3.00	
I felt like I had to do this. *R*	0	5	7	4	2	3.17	2.83	
I did this activity because I had no choice. *R*	2	7	4	2	3	2.83	3.17	
I did this activity because I wanted to.	2	4	6	4	2	3.00	3.00	
I did this activity because I had to. *R*	1	2	6	7	2	3.39	2.61	
I felt like it was not my own choice to do this task. *R*	3	7	5	1	2	2.56	3.44	

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

The responses to this subscale of questions seems mixed, but the grand mean of 2.96 indicates a neutral response, suggesting that participants felt ambivalent about whether they had a choice in what they posted and whether they were doing the assignment by choice. They believed they had *some* choice in the matter (mean of 3.17; mode of 4), but they also indicated that they did this activity because they felt they *had* to (mean of 3.39) more than they did the

activity because they *wanted* to (mean of 3.00). When asked about whether or not they had *little to no* choice ("I didn't really have a choice about doing this task" and "I felt like it was not my own choice to do this task"), they were reticent to agree with those statements (unadjusted means of 3.00 and 2.56, respectively). Overall, the results indicate that the participants did not have strong feelings of autonomy when they engaged in the hashtag discussion assignment.

Value/Usefulness Subscale

Among the subscales, the value/usefulness had, relatively speaking, one of the more consistent and positive set of responses (see Table 11), suggesting that the participants saw some value and usefulness in the hashtag discussion assignment, whether or not they enjoyed it or had a choice in the matter.

The grand mean of 3.46 was relatively high for this survey, and all of the means were between 3.22 and 3.67. This was also evidenced by the survey responses from question to question, as most were either "Somewhat True" or "Mostly True." This was the only subscale with no reversed (*R*) questions, which might explain a bit of the consistency in responses. While participants were slightly less positive about the hashtag activity as an avenue for creativity (3.22) or one of importance (3.33), they did see it as beneficial (3.67), valuable (3.56), and of possible benefit to teaching strategies (3.44) and job skills (3.44).

Table 11

Responses to the Value/Usefulness Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I believe this activity could be of some value to me.	1	1	7	5	4	3.56	3.56	3.46

Statement	1	2	3	4	5	Mean	Adjusted Mean
I think that doing this activity is useful for getting me to think about creativity.	1	4	4	8	1	3.22	3.22
I think this is important to do because it can improve my job skills.	0	3	7	5	3	3.44	3.44
I would be willing to do this again because it has some value to me.	1	1	7	5	4	3.56	3.56
I think doing this activity could help me to improve my teaching strategies.	0	3	5	9	1	3.44	3.44
I believe doing this activity could be beneficial to me.	1	0	6	8	3	3.67	3.67
I think this is an important activity.	2	2	5	6	3	3.33	3.33

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

Relatedness

Relatedness is a key component to this study. Because the hashtag activity was housed in social media, an assumption of this research is that relatedness is important to motivating students in this kind of social learning environment. Because the concept of Personal Learning Environments (PLEs) rests on notions of settling online education in spaces that are familiar to students, an environment built on greater relatedness might influence students' intrinsic (and possibly extrinsic) motivation. Relatedness is one of the three intrinsic needs of Self-Determination Theory, and its absence, according to SDT, might explain any lack of motivation displayed in the low Twitter activity.

The IMI survey responses to the Relatedness Subscale (see Table 12) do not seem to suggest that relatedness was a problem, though the slightly positive feelings of relatedness displayed (subscale grand mean of 3.77) don't necessarily imply that a community was built on

relatedness through the assignment. Many of the subscale questions that got fairly positive affirmations of relatedness were questions about interacting with fellow students in the future or if they could relate to fellow students. Because the participants were from similar demographic groups and generally similar career paths – not to mention in the same class – they might find relating to one another easier. They also felt like they could trust their fellow participants. However, the one slightly negative response from participants was to the question of closeness to their fellow participants: "I feel close to my classmates." This had a mean of 2.89 and the responses were spread out across the scale. This suggests that the participants never built a close community or friendship during the semester, even though they found their fellow participants relatable.

Table 12

Responses to the Relatedness Subscale on the IMI

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I felt really distant from my classmates. *R*	4	9	3	2	0	2.17	3.83	3.77
I really doubt that my classmates and I would ever be friends. *R*	6	8	3	1	0	1.94	4.06	
I felt like I could really trust my classmates.	1	3	4	6	4	3.50	3.50	
I'd like a chance to interact with my classmates more often.	2	2	5	5	4	3.39	3.39	
I'd really prefer not to interact with my classmates in the future. *R*	9	9	0	0	0	1.50	4.50	
I don't feel like I could really trust my classmates. *R*	9	9	0	0	0	1.50	4.50	
It is likely that my	2	0	4	11	1	3.50	3.50	

classmates and I could become friends if we interacted a lot.							
I feel close to my classmates.	3	5	3	5	2	2.89	2.89

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

Social Influence Survey

Similar to the IMI (in particular the Relatedness and Interest/Enjoyment subscale), the Social Influence Survey, developed by Li (2011), is based on the Theory of Social Influence and was used in this context to see if social influences had any effect on participant effort and motivation toward the hashtag discussion assignment. Because of its similarity to the IMI, the SIS was reconfigured to fit alongside it. Five subscales – Intention, Perceived Enjoyment, Sociability, Social Influence, and Status – were examined as they related to social influence and its effect on participant performance and motivation in the Twitter assignment.

Intention Subscale

The Intention subscale of the SIS (see Table 13) is a short duo of questions intended to measure participants' short- and long-term interest in using a social media.

Table 13

Responses to the Intention Subscale on the SIS

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I intend to use Twitter again in the short term.	2	2	6	6	2	3.22	3.22	3.31
I intend to use Twitter again in the long term.	2	4	2	5	5	3.39	3.39	

Participants' responses were generally favorable when asked if they intended to use Twitter in the short term, with a mean of 3.22. They also showed intention of using Twitter in the long term, with a slightly higher mean of 3.39, between "Somewhat True" and "Very True." This is perhaps due to a number of participants who had previously avoided Twitter thinking that they might have to use it again, possibly for professional reasons.

Perceived Enjoyment

The Perceived Enjoyment subscale (see Table 14) of the SIS bears some similarities to the Interest/Enjoyment subscale of the IMI, though it is not specifically used to measure self-reported intrinsic motivation. It measures the enjoyment and fun participants experienced during the activity, as well as their boredom.

The statements regarding the participant's perceived enjoyment of Twitter resulted in mixed responses, as evidenced by the grand mean of 3.29. "I have fun using Twitter" had a mean of 3.39, but the similar statement "Using Twitter provides me with a lot of enjoyment" only rated a 2.89 and had 8 responses between "Not At All" and "Not Very True." Twitter was not necessarily boring to all participants – the statement "Twitter is boring to me" had an adjusted mean of 3.44 – and the usage of Twitter in a classroom setting drew an equivalent response.

Table 14

Responses to the Perceived Enjoyment Subscale on the SIS

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I have fun using Twitter.	1	4	4	5	4	3.39	3.39	3.29
Using Twitter provides me with a lot of enjoyment.	3	5	4	3	3	2.89	2.89	

I enjoy using Twitter in a classroom setting.	1	2	6	6	3	3.44	3.44
Twitter is boring to me. *R*	4	6	3	4	1	2.56	3.44

Note. Statements followed by "*R*" affirm a negative, so the mean has been reversed and is listed under the "Adjusted Mean" column.

Sociability Subscale

   The Sociability portion of the SIS (see Table 15) is similar to the IMI Relatedness

Subscale, as it concerns whether or not, in this case, participants felt able to make and maintain

friendships with other students on Twitter.

Table 15

Responses to the Sociability Subscale on the SIS

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
I can find out what is going on with other students using Twitter.	0	2	8	6	2	3.44	3.44	3.28
I can maintain friendships with other students using Twitter.	2	4	4	6	2	3.11	3.11	
I can stay in touch with other students using Twitter.	2	2	2	8	4	3.56	3.56	

   The slightly positive grand mean of 3.28 and generally positive responses (only 12 of 54

were in the two most negative categories) to these questions suggest that participants felt that

they could use Twitter to maintain friendships with other students, or, at the very least, this

aspect did not seem to be much of a barrier to participant motivation.

Social Influence Subscale

The Social Influence subscale (see Table 16) looks at the importance of social influence on the participant's usage of social media. As will be seen in the interview with Karen (see Chapter 5) and has been seen in the open-ended responses, some participants feel a social pressure to respond and participate in social media from friends and family.

Table 16

Responses to the Social Influence Subscale on the SIS

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
My classmates think that I should use Twitter.	3	7	5	2	1	2.50	2.50	2.50
The people in my social group think that I should use Twitter.	3	7	0	6	2	2.83	2.83	
Using Twitter improves my image among my fellow students.	6	4	2	5	1	2.50	2.50	

Though reported in qualitative measures, social influences resulted in neutral responses in the SIS, with means of 2.5, 2.83, and 2.5 for the three measures, respectively.

Status Subscale

The status subscale of the SIS (see Table 17) is a measure of one's perception of their social status, in this case in relationship to their usage of Twitter, both in their classroom and outside it.

Overall, participants who responded to the survey did not seem to perceive that using Twitter would increase their social status among their fellow students and social group. In fact, participants seemed to reject the notion that the Twitter made them more valued (mean=2.17) or

more popular (mean=2.22) among their social group and fellow students, respectively. A

rejection of these statements does not necessarily mean that using Twitter harms one's image or

social status, but certainly participants didn't seem to think that it had a significant effect on their

image (2.5) or their status (2.56) among fellow students.

Table 17

Responses to the Status Subscale on the SIS

Question	Not At All	Not Very True	Somewhat True	Mostly True	Very True	Mean	Adjusted Mean	Grand Mean
Using Twitter improves my image among my fellow students.	6	4	2	5	1	2.5	2.50	2.36
Using Twitter improves my status among my fellow students.	5	3	5	5	0	2.56	2.56	
Twitter makes me a more valued member of my social group.	6	6	4	1	1	2.17	2.17	
Twitter increases my popularity among my fellow students.	5	6	5	2	0	2.22	2.22	

Open-ended Question on the IMI and SIS

At the very end of the Intrinsic Motivation Inventory and Social Influence Survey, the

participants were asked a general optional question about the use of the Twitter hashtag in the

course, in part to give feedback to the instructors about this particular assignment. The

participants were instructed to "[p]lease write below any thoughts or comments you have about

Twitter and/or hashtag usage in the classroom. This question is optional, but your response will

be helpful for both research and future class assignments." Ten participants responded, and the

results are shown in Appendix F.

Overall, the participants reported fairly positive feelings about having used Twitter in the classroom. Some enjoyed it, and others thought it provided variety to the course assignments, even if they didn't use it very much. Though none was effusive in praise, a majority of the participants had positive feelings toward the assignment. However, there were a number of negative responses as well, including this one, which seemed a summation of the negative feedback:

"I have used Twitter in the past for personal use, but it became something to keep up with and something that I no longer enjoyed so I got rid of my personal account. I set up the new account for this class and felt that it was more of a task than something I enjoyed doing. I think that it could be really useful in some settings, I personally just do not enjoy using it very much. Having the updates to check on from other classmates about what was done in class each day was helpful, but I also think that there are more effective ways to keep track of this other than Twitter".

Again, many participants had negative pre-existing opinions of Twitter, which might have affected their motivation. One participant had this to say about Twitter and its use in education: "i really dont enjoy using twitter[…]i dont know how to do it well and i wish it wasnt used so widely in the education world [sic]."

Summary

The purpose of this study was to investigate the motivational effects of an online discussion forum when it was moved from an institution-supported Learning Management System (LMS) to a social media personal learning environment. Participants in one section of a blended learning classroom engaged in a required class discussion through the use of a

designated Twitter hashtag (#techclass), which would allow their tweets and comments to be grouped together within the social media site. 114 Twitter handles

Three survey instruments were used to answer the research questions, and screen captures of the Twitter posts to the hashtag were also analyzed to determine the actual level of participation in the assignment.

The first survey, the Technology Usage Survey (TUS), was taken by participants at the beginning of the semester to gauge their current technology usage, as well as pre-existing attitudes toward online discussion forums, Twitter, hashtags, and social media use in education. There were 16 participants (n=16). The main portion of the survey asked participants about their technology and social media usage along a Likert scale of ordinal time measurements, ranked from one to seven: "Never;" "Less than Once a Month;" "Once a Month;" "2-3 Times a Month;" "Once a Week;" "2-3 Times a Week;" and "Daily." The most popular social media and technologies used among participants were Facebook, Snapchat, Instagram, YouTube, and Gmail. Mobile technologies such as smartphones had full saturation. In fact, Twitter ranked lower in popularity, with a usage mean of 4.25 out of 7.00, as compared to Facebook, Snapchat, and Instagram, which all had means above 6.19, indicating nearly daily usage.

Participants were asked why they chose to use certain social media and why they chose to leave them. A number of factors emerged from the data, including the overwhelming influence of family and friends on the decision of what social media participants use. These responses also highlighted the importance of features, convenience, ease of use, and pictures in their technology and social media choices.

Participants were asked about their feelings towards online discussion forums, and those statements were met with a neutral, if not slightly negative, response. Statements such as "I like

participating in online discussions" were with mixed results (a mean of 3.13 out of 7.00), and though the means indicated neutral responses, the bimodal nature of these responses indicated participants fell more toward the extremes of liking and disliking their usage. Furthermore, participants noted that they did not participate in online discussions much outside of class. Qualitative responses about online discussion forums confirmed these mixed feelings, particularly related to the general lack of participation in online discussion forums.

The TUS also asked participants for open-ended responses as to their view of hashtags. All but one participant knew of hashtags, but, overall, they drew mixed responses. Positive responses cited the humor of some hashtag use and the ability to quickly group people together. Negative responses mostly cited over-usage of hashtags as the reason for disliking them.

The TUS also asked participants about their feelings toward social media use in education. In general, participants expressed positive feelings toward the use of social media in an education setting, highlighting its potential while being ambivalent and skeptical about its usage if it was not beneficial to them. Privacy concerns were mentioned as well.

Over the course of the semester, the posts to the class hashtag were screen-captured and the data were transferred to a statistical program for analysis. Complicating the study, a number of other course sections ended up using the same hashtag, meaning that students in other classes were added to the hashtag beyond the class that was the focus of this survey, increasing the number of participants for this activity to 114. However, this extra amount of Twitter posting only served to demonstrate how low the Twitter activity was, as no participants replied to one another during the course of the semester, and the mean number of posts per participant (9.36) was far below the assignment's 40 required Twitter posts. Many participants only posted once, as the mode number of posts was one. Furthermore, most of the posts happened during class and

featured in-class activities. Pictures were featured in 21.04% of the posts to the hashtag. The average character count was 63.19, less than half of Twitter's 140 character limit per post. Only 9.29% of posts were retweeted by others, indicating a low level of interactivity on the hashtag. A majority of posts (71.67%) were "favorited," but, as revealed later in the interviews, these "favorites" do not mean much more than an acknowledgment.

Two additional surveys (n=18) were administered at the same time at the end of the course: the Social Influence Survey (SIS), and the Intrinsic Motivation Survey (IMI). These two surveys measured self-reported intrinsic motivation and social influences on participations, respectively, on a Likert scale from 1 to 5. Because of their similarities, the two surveys were grouped together. Each survey featured a number of subscales that measured intrinsic motivation and social influence along a variety of dimensions, such as Perceived Choice, Relatedness, and Sociability. In general, neutral levels of motivation and social influence were reported in the surveys, indicating that the participants were not highly intrinsically motivated to participate in the assignment and that social influence factors had little positive effect on their participation, as evidenced by the lack of activity on the hashtag itself. Reported relatedness was neutral to low, and though participants felt they had the ability to relate to one another, they had trouble connecting online. Sociability factors were an important social influencer. Their reported autonomy, interest, and enjoyment were also neutral. Participants reported feeling fairly competent with the assignment itself.

CHAPTER V

INTERVIEW RESULTS

The purpose of this study was to investigate the motivational effects of an online

discussion forum when it was moved from a Learning Management System (LMS) to a social

media-based online discussion forum housed in a Twitter hashtag. A total of 19 participants in

one section of a blended learning classroom participated in a required class discussion through

the use of a designated Twitter hashtag, which allowed their tweets (comments) to be grouped

together within the social media site. The main question for this research was: What factors

influence student motivation in a hashtag-based discussion forum? To investigate this question,

the following subquestions guided the research:

a. How do participants engage in the hashtag discussion assignment?

b. What motivational and social influence factors affect participants' activity when they post

   to the Twitter hashtag?

c. How do previous experience with and attitudes toward social media and online discussion

   forums affect participant motivation in the hashtag-based discussion forum?

Interviews were conducted with four participants to further describe and explain the

student activity during the Twitter assignment and to answer these research questions. The

interviews were conducted between December, 2014 and June, 2015 at various locations around

the campus of a large Southeastern university, as well as a nearby coffee shop. The four

participants were chosen for interviews based on their interest and Twitter usage patterns. Two

participants who were interviewed, Marion and Karen (pseudonyms are used to identify all of the

participants who were interviewed), tweeted over 25 times during the semester, placing them in the higher range of "per participant tweets" for this assignment. The other two participants who were interviewed had much lower levels of Twitter post activity. One of them – Daniel – only tweeted once during the semester.

Each interview lasted between 45 minutes and one hour. The interviews were conducted using a semi-structured interview protocol and followed Seidman's rules for qualitative interviewing (2006). Each participant's Twitter patterns were reviewed beforehand, and they were asked about tweets and usage patterns during each interview.

The following is an analysis of each interview and the themes that emerged during the initial coding stage of the Constant Comparative Process being used for qualitative data analysis.

Interview with Karen

Karen is a 21-year-old public relations major who was enrolled in the class during the fall semester. Though not an education major, she admitted before the interview began that she took the course because it was "an easy 'A.'" She had very little previous experience with Twitter and did not want to engage with it before the class. During the course, she tweeted 25 times total to the class hashtag, and her average post length was 72.48 characters without the hashtag or any link information, which was above the average tweet character count of 63.19. She never replied or retweeted.

She admitted mainly tweeting during class when it was her time to be a class twitter leader. Karen most likely would not have tweeted for class if it had been optional or not required: "I definitely felt like it was something I had to do. I mean, it was part of my grade, I guess, that's really all – I wouldn't have done it if she said we didn't have to do it, if it was optional. I

probably wouldn't have done it." As an assignment, she found the requirement less of a problem than "keeping up with it and the time needed."

The course marked her first time using Twitter, something that might explain her (and other participants') low participation: "I pretty much never used Twitter until I took [the course]. Pretty much the only social media I used was Instagram, Facebook, Pinterest. Yep, that's pretty much it." Before using Twitter, she found it of little value, especially given the character limitation: "You were very limited with what you could post there. You could only post 140 characters, so kind of just felt 'why'?" Later in the interview she stated that Twitter held little perceived benefit to her life, except "maybe in the professional world or something like that." She said that she might consider using Twitter if her friends also used it. After the semester was over, she deleted her Twitter account.

Competency with the technology did not appear to have an effect on Karen's enthusiasm for the Twitter assignment. Karen attended a private high school that "was very against technology in the classroom and technology in the school at all." However, she said that she jumped right into technology usage in college: "I never felt like I couldn't do something or that I struggled with anything." This educational technology course marked her first experience with technology in the classroom, and she noted "it opened my eyes to things that teachers could be using in the classroom to facilitate learning."

Karen indicated that her main social media choices were Facebook, Instagram, and Pinterest, responses that are aligned with the results of the Technology Usage Survey (TUS). For Karen, Facebook was primarily a way of staying connected with hometown friends and family: "…I guess I was still in the round of people that still used it a lot, that's how I keep up with my high school friends and anyone from my hometown, even my relatives are pretty much all on

there, too. So that's really what I use Facebook [for]." She affirmed this in the interview again later, saying she really only used Facebook "to keep in touch with people from my hometown."

Although Karen only posted two photos to the class hashtag during the semester, she indicated that visuals were important to her and were what drew her to certain social media, particularly the aforementioned Instagram and Pinterest. She suggested these visual-related social media satisfied a need: "Instagram and Pinterest are kind of those visual needs because that's what I have, that's what I like."

Beyond the appeal of images to Karen – or perhaps in line with it – Pinterest served as a powerful organizational tool for her, allowing her to organize her interests in a visual space: "Pinterest is kind of – I can organize things and different ideas, that way – it's like a series of folders, especially with all of those different boards. I have a lot of different interests, so it's like an outlet for me to organize everything."

While Twitter can incorporate photos, it did not seem to satisfy Karen's need for visuals. More than that, she rejected this social network because her friends were not active on it: "[Twitter] never interested me before. None of my friends have Twitter. Who would I be talking to if I was on Twitter?" In line with the open-ended responses in the TUS, the presence of friends and family were the major driving factor in Karen's choice of social media. She admitted no experience with another social media site mentioned in the interview, Tumblr, and the only knowledge she had of Twitter was that it was a "constantly updated" source of news for some people.

In line with how she used Pinterest, Karen decided to use Twitter as an organizational tool, mostly posting what she called "reminders" about the class, both reminders of events and reminders of what she learned. Here is an example of Karen's reminder tweets: "Remember no

class next Tuesday! So go ahead and hit snooze #techclass" or "Did you know the Archway

Partnership works with rural GA schools to promote technology in the classroom #BYOT #byod

#techclass"

When asked why she mostly posted reminders, she said, "[t]hat was the only thing that I

could find that was relevant enough to post there on Twitter." When asked why she posted

reminders for herself and others, she explained, "I guess I wanted to post what if it were me, well,

what would I want to remember from this class?" When asked if she posted what she wanted to

see on Twitter, she said "Yes." Karen did not use Twitter as a creative or self-expressive

enterprise, and shared, "Um, I think the only time I posted something creative was when I was

given the role of tweeting for the class, for the entire class period, and I kinda had to think more

about what I was tweeting."

Most of her tweets were posted during her time as "class tweeter," while a guest speaker

presented via Skype about a *Bring Your Own Technology* initiative. She took a picture of this

event and tweeted inspirational quotes from the speaker, for example, "Going BYOT changes

teacher practices, satisfies the new teaching standards, circumvent old resources #BYOD #byot

#techclass."

In general, Karen mostly tweeted during class, and never felt the need to interact with the

hashtag outside of class, stating: "It just didn't really cross my mind. I'm that kind of person –

out of sight, out of mind – kind of person. I wasn't there, so I wasn't really thinking too much

about it." She reported clicking on the hashtag only one time, to see what she thought was

another class outside of the United States posting content, not knowing it was another class at the

same university.

Karen understood hashtags as, "a way of connecting with people talking about the same things," but she only used them on Instagram, and never on Facebook. She shared a humorous story about putting a hashtag on Facebook:

Researcher: Why not on Facebook?

Karen: I'm pretty sure one time I did, and someone told me "Hashtags are not for Facebook. They're for Twitter." And I don't use Twitter, so…

Researcher: The social influence keeps you from doing it because you'd be seen as uncool?

Karen: [laughs] Yeah. Yes.

Along the same lines, Karen spoke about a unique social pressure she experienced from a social media-using friend, who felt that Karen needed to acknowledge her posts with a "like." Karen used Instagram more than some of her friends and had a friend there who was a "liker." She indicated that she felt pressure to "like" the friend's Instagram photos, similar to a "favorite" on Twitter or a "like" on Facebook. She noted that there were "two different kind of likes," distinguishing between a so-called "mandatory like" and a "like like," which indicates genuine liking of something. The following conversation indicates that Karen parsed the meaning of the word "like" based on social pressure, possibly with a note of acknowledgment as to the absurdity of it:

Karen: …There's the mandatory like because I'm your best friend and I have to like everything that you post.

Researcher: You feel social pressure?

Karen: Yeah, like, "Oh, she's going to see it as I don't like her that much." It's silly, but it's true.

Researcher: How do you keep up with everything, though?

Karen: Exactly. Exactly. [laughs] And there's the "like like." Oh, I actually like that.

Later in the interview, she compared "favorites" on Twitter to "likes" on Instagram and Facebook: "I guess it falls under the same thing as likes, just whatever interests me I would like or favorite on Twitter." Favorites were given as "thanks" or "acknowledgments" for reminding her about class activities, mirroring her own usage of Twitter as an organizational and reminder tool:

> Most of the time they were people saying "Hey, guys, don't forget we have a blog post due at the end of this week" and then I would favorite it because I didn't remember that. Thanks. Favorite.

She only gave favorites to classmates on Twitter, but she said she never felt any social pressure to do it like she did with likes on Instagram.

Retweeting or sharing on Facebook and other social media requires relatable or relevant content. Karen spoke of sharing a post related to her hometown, echoing the connection of Facebook to her friends and family:

> Something really relatable, I guess. Maybe something that shows one of my interests. I think the other day they posted this, I think, Buzzfeed came out with this list, Fifteen Things Everyone from [Karen's hometown] Knows, and that's my hometown, so I shared that because "look how great this is and everything on this list is so true," and everyone that liked my share was from [Karen's hometown].

Karen acknowledged never replying to a single post and even expressed some confusion as to how replies worked, indicating she had never used it before.

She found it hard to find things relevant to post about the class, even though it was "great information," as she described it, mostly due to her not pursuing a career in education. She said "…maybe not everything I could use on a daily basis because I'm not a teacher…"

Given Karen's affinity for visuals and relatable content, the only post she remembered retweeting was a photograph of the class on a trip: "I just thought it was cute, honestly, because it was a picture of our class on a field trip to Barrow Elementary." This connection to her classmates could have been what met her criteria for retweeting and sharing content.

She said that she felt a connection to her classmates face-to-face, but this connection did not translate online, in part because Twitter was not a social media that she typically used:

> I guess because the only place that our class interacted [online] was Twitter, and Twitter was not a social media that I used, so I guess we weren't connected in that way. Maybe if we used a different outlet of social media, one that I liked more like Facebook or something like that or a class Instagram or something like that.

Even though she felt she had a choice in what to post, Karen did not feel that Twitter was a good outlet for creativity, leading to "trivial" posts: "It's just that I'm not creative in that sense, so I would just post trivial things like reminders. But absolutely I feel like I could have posted whatever I wanted." Karen thought of herself as creative, but she wanted more direction with the assignment. In addition, the class environment was not conducive to her creativity, as she stated: "Because I didn't really find – there's nothing really creative about taking a picture of a classroom with a bunch of students at 8am in front of their computers. I mean, maybe, like, the effects of not getting enough sleep [laughter]."

When asked what would have motivated her more in the assignment, Karen again noted relevance to her interests and the importance of images:

I guess if I found it personally relevant. Or maybe an outside interest? Perhaps if it was to create a Twitter to follow things that I was interested in, you know hobbies of mine, that might have gotten me to use it. Not just education would get me to do it. Or maybe if there was an overall bigger picture component.

Karen's previous experiences – or lack thereof – with online education and online discussion forums might have influenced her perception of the assignment and its usage of Twitter, but her preconception of Twitter certainly had an influence. Her image of Twitter was that it was "people getting into fights and arguing about, like, political issues or stuff like that," and, though she did not worry much about controversial statements from the class, she was hesitant about using Twitter because of her own preference for behavior online: "…I'm never one to be very bold, I guess, and say something that would offend, like, a large group of people." Karen reported that she has participated in online discussions in a class before, but only because it was required.

The social media requirement for class did make her a bit uncomfortable, in part because of the boldness:

Um, well, I guess because our class wasn't big, but because it was so early in the morning not a lot of people talked in class other than to the people at their separate tables. So at one point I was sitting there and thinking I'm in a room filled with strangers and, like, who's going to care if I post a picture of, whatever, I don't know really know? I didn't really relate much to them.

Note that she referred to classmates as "strangers" and that she did not "relate much to them," even though earlier in the interview she said she felt a connection to them. When asked if "relatedness" to her classmates would have caused her to post more, she explained that the lack

of relatedness came from the low post activity: "I would have felt more connected to them in general because I would have known more about them, so if they were posting more I would have felt more connected to them. But they didn't really post."

Karen believed the quality of the conversation and posts would have improved if the participants had been able to learn more about each other: "Well, I felt like if we had spent more time getting to know everyone in the class maybe it would have been more of a comfortable environment for people to post whatever they wanted when they wanted…" For her, one of the barriers to relatedness was the fact that most participants created Twitter accounts just for class. The result was that all of the posts were about class and not about personal things, which would have helped her feel more connected to her classmates in the online space, and not just – as she put it – "Hey, guys! Homework's due Thursday." Karen believes that social media feeds can tell you something personal about someone, even herself: "I think if someone looked at my Instagram page they could probably tell a lot about me."

Interview with Marion

Marion is a 21-year-old mathematics and computer science major who enrolled in the course during the fall semester of 2014. Over the course of the hashtag assignment, she tweeted 27 times to the class hashtag, and her average post length was 87.44 characters without the hashtag and any link information, above the average tweet character count of 63.19. Like all of the other students and participants on the hashtag, she never replied to another tweet. Eight of her tweets included pictures. Like many other participants, Marion created a Twitter account just for this course.

In her personal and professional life, Marion mainly used LinkedIn, Facebook, and Pinterest. LinkedIn was her self-described "professional network site," where she stored all of

her professional and networking information. Online professionalism was important to Marion, especially her outward appearance to both current and potential employers. She liked to keep all of her "About Me" information updated because she was worried that someone might see inaccurate information, and she preferred to post professional achievements over personal ones to social media.

Because she also worked as a data scientist while in school, Marion was wary of Facebook, even though it was one of her preferred social networks: "…I know what kind of data Facebook is gathering and I know what they gather about you through that, so I don't like to post a lot of personal things." She eschewed status updates featuring personal information in favor of "keeping it as bland as possible." For her, one of Facebook's primary purposes was to store pictures that she could access on multiple devices from multiple locations.

Facebook was also important to Marion in that it allowed her to communicate with family members who lived out of town. She also admitted that Facebook kept her entertained during "a boring lecture class." She explained:

> Lecture halls are especially dangerous because once you've written down the information it's very hard to stay focused, so sometimes it's an outlet for keeping myself entertained during a lecture hall, but I try not to do that as much. I try to put my phone in my bag and not touch it during a lecture. But I have done it before.

When asked what was "entertaining" about Facebook, Marion said a "natural interest" in other people's activities and lives, especially if it involves pictures. She said the following about pictures and what she liked to see online: "I like to look at a lot of pictures of friends and what they post. You know, games they went to at their colleges. Stuff like that."

Getting "likes" or other forms of approval on her own posts to social media did not seem to be much of a concern or a goal for Marion: "As far as photos that I've posted, maybe, like, going to a [college football] game or something, whether or not people like or don't like those, I don't really get a charge from that. I don't really care as much about those 'likes.'"

Marion's Pinterest usage involved crafting and saving crafting ideas online. Of note is that eight of her 27 tweets included pictures, which might not be surprising given her previously stated interests in photos and pictures on Facebook and Pinterest. She also discussed posting photos of sporting events and looking at other people's photos of sporting events, indicating sports and images are important to her. Later in the interview, she talked about how posting images was the way the assignment became "second nature" to her.

Twitter was not a social media with which she had engaged before, and, like many of the other participants, she created an account specifically for the class. Her perceptions of Twitter came from her friends. Her friends might "show [her] a tweet of somebody or a famous person or funny thing…" Even though "a lot" of her friends used it, she never read or used it herself. Marion's understanding of Twitter revolved around its expediency and potential to inform: "that it was a social media site mainly used for quick thoughts and quick little bits of information and a lot of people use it in an informative way then also in a funny way." Much like some of the participants in the TUS, the humorous aspect of Twitter was highlighted by her comments.

Marion was familiar with hashtags, particularly because of her work with trending topics in data mining, but she had never used them at all. Before the class, she said she saw hashtags as a way of grouping together people along similar interests:

They were a way for people to collect thoughts, if you have a hashtag then it's a way to show that you have similar interests, that you have similar things you're interested in.

You're talking about similar things they're talking about, and if you search hashtags you

can see what people are discussing and what's trending, kind of in the world at the

moment.

Marion said she enjoyed the informative aspect of hashtags and mentioned a time she

used a hashtag to find news coverage when her favorite team, the Atlanta Braves, signed a new

outfielder. She noted that humorous hashtags like "Throwback Thursday" held little interest for

her, though they did not bother her.

Marion indicated that using the hashtag in the course was a "good idea," though she did

not feel that way at the beginning of the semester. "Oh, great, I have to make a Twitter for this

course," she said, adding that it was "[k]ind of annoying." Her feelings changed over the course

of the semester, especially when she clicked on a hashtag to search for her fellow group

members in class: "[I]t actually ending up being beneficial because I didn't have contact

information for some of my group members, so I could search the hashtag, find their Twitter

account and contact them that way…" Marion saw using a hashtag as having potential value in a

classroom setting, "as long as it's being engaged." Later in the same statement she reiterated that

a hashtag could be "very useful" in a classroom "as long as it stays as engaged as it was for us at

the beginning," suggesting the level of engagement with the assignment decreased as the

semester went on.

One of the reasons Marion saw the semester as "difficult" and thought the class Twitter

activity was low was that the class was too busy doing too many things at once. Adding to the

issue of low conversational activity and response rate was the fact that participants were not

engaging in a discussion – evidenced by the lack of replies – and were merely repeating what

they were doing and had already learned to satisfy the assignment. Marion's comments on the

matter are as follows:

> It was kind of like…kind of just tweeting what you were doing instead of having a
>
> discussion or to learn something new. It kind of felt like we were repeating what we
>
> already knew, just so that other people could see it, too.

Marion's initial motivation to engage with the assignment was that it was a class requirement, but she did state that she developed a pattern of behavior during the course of the semester that was "second nature," particularly as it related to taking pictures: "…it just kind of became second nature to take a picture of what we were doing in class and say something about it on Twitter. After I went to class, I would think about it and then just do it. I don't think there was motivation to do it." In general, Marion indicated that motivation in a classroom setting starts with class requirements "[u]nless you find a way to excite students about it."

Marion said that she felt a connection with her classmates and that they were a "pretty close class," but she did not feel that Twitter had anything to do with that sense of closeness, except possibly adding to it as something that "was kind of fun to do." She believed that the closeness she felt to her classmates came from in-class group activities that paired her with different people over the course of the semester. Again, the important role of photos came up in the interview, suggesting that her preferred mode of satisfying the assignment requirements was visual:

> Every once in a while you would take a picture of someone in class doing something
>
> funny and you could laugh about it and tag them in Twitter and say what you're doing in
>
> class, so I think that helped, but I don't think that's what fostered the community we had.

Marion felt like she had a choice in what kind of content she was allowed to post because the assignment was "open-ended," noting that sometimes the instructor would encourage them to

post about in-class activities. She preferred the open-ended nature of the assignment because of the diversity of content it produced, saying "it's nice because people naturally think differently, so they can choose to tweet about different things, and it's more interesting." If the class were more directed, she thought that the posts would have been more similar in content.

She did read some other tweets on the hashtag, but usually she posted and then checked on the hashtag later, meaning she was not reacting to other participants' posts. She said, "Usually I just fired off what I was planning to fire off and then I'd go back and see the tag board and see how it related to other people." Sometimes she would see similar pictures to the ones she posted, but, overall, she did not check the hashtag much and usually not before she tweeted: "It would be nice to investigate first and add new information, but it didn't always happen that way."

Marion directly addressed why she preferred posting pictures over text tweets, incorrectly estimating the balance between her text-only and picture tweets at "half and half." Pictures were "more interesting to look at than a tweet," and, in lieu of being able to tag other people in the posts or being able to add more information, she chose to post pictures. In a way, pictures were a default if she had no text to post, though "maybe there was something informative for me to tweet, so if I could tag other people or use other related hashtags besides #techclass then I didn't include a picture." She never tweeted just a picture, including a caption with every one.

Marion did "favorite" some classmates' tweets, but she never retweeted any, by her own admission. She also had trouble discerning the difference between "favoriting" and "retweeting," possibly because of her lack of experience with Twitter. She said that "a retweet to me would be, like, I thought this was good enough that I would say it," and that a favorite "would be 'I just liked what this person said.'"

When asked how comfortable she felt using social media in the classroom or in general, she said she felt "optimistic" about it but noted her lack of experience using social media in a classroom environment. She indicated that one cause of this lack of experience was that she was a math major, with professors who were older and had an overall disinterest in social media. She used Facebook for communicating with a small group in her Spanish class, but did not use Twitter or anything similar in any other classes. Her overall feelings of optimism toward social media had more to do with its broad usage in education, and she felt that it had potential with high school students because they are more "distracted" than college students.

Marion had previous experience with LMS-based online discussion forums in other classes, but found that meaningful conversations were rarely generated, and that people usually posted the "bare minimum." When controversial political opinions were posted to online discussion forums, she observed that discussion occurred, but "it wasn't very productive," just "people from the opposite sides of the spectrum arguing and going back and forth."

When asked to compare and contrast online discussion forums with the Twitter hashtag used in the course, Marion preferred Twitter because of a few features, including the ability to post pictures, the ability to alert other users through tagging, and, most importantly to her, the short length of posts. Marion's description details the differences between the two online discussion forums:

> I think that's better because it's a shorter amount of words, and I think with an online discussion board a professor may say post 250 words about this topic. So you go and post 250 words and you close your laptop and you're done, and you don't even go back and read what the other people post most of the time. But with Twitter, not only do you get the alerts when people favorite or retweet, you know, or tag you in a tweet, but it's easier

to have a conversation because it's like a back and forth. They might say a sentence or two and then you say a sentence or two back and it's more like a conversation naturally occurs. Typically you don't talk 250 words at a time and then a person responds 250 words at a time.

A positive for Marion was that the back-and-forth of Twitter more closely resembled the natural flow of conversation. In addition, she thought the alerts could bring her and others back into the conversation, as opposed to an online discussion forum, where she would post a response to a professor and then never check on it.

Marion did not feel that the other participants' level of activity in the hashtag assignment influenced her own. She mentioned hearing comments about other participants forgetting to post to Twitter, but she always planned on posting during each class meeting. She also mentioned a Pinterest group activity in class that involved collaborative pinboards, and seemed to inspire more activity from her and her classmates "because we were interacting more with [it]." It is possible the collaboration and sharing of visual material connected her more to classmates than the Twitter assignment. Earlier in the interview, she mentioned sharing via retweets as being part of a more "natural" back-and-forth conversation, and the interactivity and sharing involved in the Pinterest activity might have been similarly motivating for her.

When asked what motivated her in class assignments or otherwise, Marion cited challenge was an important motivator, in opposition to being bored. Achieving goals was important to her, and she discussed the satisfaction of completing small and/or big tasks "successfully and on time." She spoke of having a long to-do list of tasks and goals that she wanted to check off.

Being perceived as competent was important to her, but even more important was the success she associated with meeting self-defined goals. She reported that this was a driving factor in her life, and more significant than how her peers perceived her or whether or not she related to them:

> I think it's much more personal. I personally want to be successful. I only want to achieve certain goals that I've set for myself. Whether or not people are happy or not with the goals I've set for myself or whether or not people even notice I've achieved those goals, that doesn't really matter to me. It's much more personal.

Her interest in an assignment or subject motivated her to work harder and do more, though she always finished her assignments, even if she was not particularly interested in them. The ability to choose a project idea or subject matter in school was a significant motivator for Marion. This could create a problem when assigned group work, as Marion would rather do what interested her than follow another group member's direction. She thought she was able to research more when she chose what she wanted to do, and that she learned more when she was not assigned a topic. She expressed her belief that "people in general" are more motivated when they are allowed to choose topics that interest them, indicating that her choices would be directly relevant to her interests:

> I'm going to choose math and science because it's what I like and I'm going to be able to connect it with what I've done in the past. So, yeah, I think it motivates more to be able to choose your own project and your own plans.

Interview with Nicole

Nicole is an undergraduate accounting major, originally from West Africa, who took the course in the fall of 2014. Unlike Marion and Karen, Nicole had a low level of participation in

the hashtag-based discussion assignment, and only tweeted seven times throughout the semester. The average character count of her tweets was 43.5, and three of her seven tweets contained photos. Like all other participants in the class, she did not reply to any other tweets and only recalled retweeting a post or two.

She did not see her low participation as a problem or as something that might affect her grade. During the interview, it became apparent that she might not have understood the requirements and parameters of the assignment:

I think we all had a week that we had to tweet. Was it a day or a week? I'm not sure, but I remember, but I remember my week – as long as I tweeted – as long as I tweeted to the hashtag, [techclass] or whatever, so if we had an assignment, you know, tweet about it…

As far as the kinds of items she was expected to post, Nicole had the following recollection: "As long as it was…something about…what was the main topic? I forgot? But all she said was tweet something about education or technology, something related to class." When asked about what she tweeted, she noted two events. The first was when a few younger students came in and made paper planes with the class (she tweeted once about this). The second was a trip to a local elementary school where a teacher talked about creating a "maker space." Three of Nicole's seven tweets were posted on the day of this second event. She did not recall the assignment having any sort of requirement regarding the total number of tweets.

When asked whether she engaged with this assignment, Nicole responded "Um, not really. Just enough. Not much." In this case "enough" seemed to mean being involved in the class Twitter assignment, despite her self-reported antipathy to Twitter, especially when it was used in a class setting. Twitter was not "really too social or interesting." She had a hard time finding things to tweet about the course that were interesting. As she describes it, "[i]t wasn't too

interesting. It wasn't too interesting for me to tweet, like, Oh My Gosh this is dot dot dot."

Nicole reported that she was usually motivated by being allowed to post content of personal interest to her, saying "[t]he only time I will go hard is if it hit home for me, if it is something personal, if I have some personal experience about it…" She also wanted to satisfy the instructor and her classmates as well, but personal relatedness and interest in the topics were important.

Nicole had a Twitter account before the class but had stopped using it because she did not enjoy it: "Twitter is more of what's going on in your life right now. What's going on. To me, I don't find that interesting, posting what's going on right now." She had "left the Twitter World," by her own description, and was using the semester to take a break from Twitter and other social media. She expressed some resentment about coming back to Twitter for the course:

Researcher: So you were, like, "Now I've got to do Twitter again?"

Nicole: Exactly. Sort of, like, ugh, now I have to go back to Twitter. Yeah.

She started using her personal account again for the class, but did not report feeling connected with her classmates online or being comfortable using Twitter. When asked whether she checked the hashtag to see what other classmates were tweeting, she was more interested in other class sections that used the same hashtag. She noted a strong difference between the connection she felt with her classmates in face-to-face and online settings:

I mean, I checked the hashtag once in a while, just to see what other classes were tweeting and posting. The other classes, really. My classmates? I mean, not really. With the group project, yeah, we were connected because we were working together as a whole class. That was fun. But outside of class? Not really.

A lack of communication seemed to be a hindrance to Nicole's (and others') Twitter activity: "We all followed each other, but there was not communication, not constant

communication." She believed that everyone was "trying to get a good grade and get out," and that her classmates were just working to satisfy the minimum course requirements. She indicated that she was too busy to engage with the assignment herself, and because of the lack of communication, she did not feel it was necessary to give the "extra effort to keep that connection going." She said that classwork and assignments were more of a job for her, and she expected other people in the course to treat it like a job as well, to "get the work done." She valued expediency over personal connection online: "…this is the assignment. Do what you have to do. Let's go." Later in the interview, Nicole said she stayed away from social media in general during the semester in order to focus on school, returning to daily social media use in between semesters. When asked if social media use in education was intruding on her personal online space, she said it depended on whether or not it related to the course content, but suggested that it could be a distraction.

Nicole admitted that she was not motivated to tweet in class – which was seen in her low number of tweets – but said that she might have been more motivated to tweet if she (and others) had been tweeting about topics of interest to them. She thought this would have given her more of a personal connection to the assignment and her classmates' tweets, which would have motivated her more. Overall, she indicated a lack of connection to the assignment:

> What might have motivated me was if the assignment was more than just class, more outside of class, just in terms of…not just about technology and education. If it was other topics that interested me then I might have tweeted more. I might have been more interested in tweeting. Like I said, it's all about choices, about personal choices, about feeling…I just wasn't feeling connected to it a lot.

When asked about what connected her to other social media and content on social media, Nicole spoke of feeling connected to Facebook and Instagram the most, particularly because of the prevalence of photographs and visuals. She said she is not a "word person" and does not like to write online:

I probably use Facebook and Instagram the most, because, like, I like the visual elements more. I like the pictures. I'm more of a visual person. I like posting things like that. I'm not a word person. If I'm on Facebook, you'll barely see me write or stuff like that. So if I'm posting it's something I like, a repost, a repost of something I liked or found interesting, but I'm not a writer or a word person. I'm more of a picture person.

Several times during the interview, Nicole mentioned the idea that pictures "tell a story," adding that photos were more attractive and attention-grabbing for her. Visuals allowed her to tell her own story to others and communicate things about herself:

Researcher: Do you want to tell your story to people, perhaps? Or do you want to see other people's stories?

Nicole: Exactly. Yeah, both, and mostly through pictures, yeah.

Another visual and self-expressive social media outlet Nicole used was Pinterest, though she reported using it less than Instagram and Facebook. She identified the site as a good place to collect images that represented her interests and tastes. She used Pinterest for re-pinning other people's materials, unlike Facebook and Instagram, where Nicole mostly posted her own content, primarily pictures. Nicole believed that Pinterest could tell a "story" of someone's style and taste, just as posting pictures on other social media could, even though it was appropriated material:

I like the style. I like how the collections are. I post that, so that, it just tells a story of

what kind of person you are. Do you dress a certain way, or do you dress this other way?
Like, how do you normally see things? What are your tastes?

This ability to tell a visual story through social media might have motivated Nicole to tweet more, and she even suggested that the use of Instagram over Twitter might have motivated her to participate more. She indicated that Instagram was easier to use and more convenient, describing it as having an "easy flow," unlike Twitter, which she found too overwhelming. Though she did not favorite much on Twitter or retweet anything, she felt very comfortable "liking" posts on Instagram.

The presence of her friends and family and the ability to connect to others were cited as important reasons for Nicole's social media choices. She mentioned that she had left unpopular social media before due to a lack of friends, though she did say she still had friends on Twitter. Nicole valued having friends on social media because they were there to see her posts, and because communication was increased when she could "be interactive with [them]." She described the excitement of having people on social media interacting with her posts:

It's more of an acceptance. Not accomplishment, but more of a happy…I don't know. You just get excited that they like it, like, that they accept it and they find it interesting… So you do have people that connect with you, like, Oh! They like it. They find this really nice. To me, that's cool.

While "likes" on Instagram and Facebook had meaning to Nicole, responding to a post with text meant much more. It was "above and beyond to come out and praise the picture or commend it." She shared her thoughts on the difference between "likes" and on "going the extra mile" by responding with a reply or retweet:

I mean, a like is good. A like is like a normal everyday thing. But someone going the extra mile is more. It's much, much better. It's more exciting. It's kind of like when everyone gets a "B" and you get an "A." Kind of like, oh my gosh, this is excellent.

Unlike Karen, Nicole did not report feeling pressure to "like" other people's posts on social media, though she did speak of a pressure to compare herself to others and post similar pictures: "…when you see a lot of people post things about their lives and you're, like, 'Oh, I want to post mine.'" The pressure Nicole described was an internal pressure and a need to have people see what was going on in her life, similar to what she saw when other people posted. Nicole also mentioned she had a roommate who pushed her to be more active on Twitter, and suggested that this constant pressure may have stopped her from using the social media, even though she was envious of the information her roommate learned from it:

My roommates. They're very heavily on Twitter. I have one. I mean, she is Twitter crazy. She is like the god of Twitter. And the pressure…she's like "why aren't you on Twitter and blah blah blah? Why aren't you always on Twitter? Why don't you tweet?" And I'm, like, nah, nah. And then she gets a lot of information just being on Twitter, especially being at a big school. Sometimes I'm kinda like, "Oh, man, I wish I was on Twitter to get all that information," but, at the end of the day, it doesn't, it doesn't really push me to do a lot because I'm still going to get the information that's out there. So if you have something who is constantly, like, doing that and giving you that information, it makes you not want to do it anymore…

Throughout the interview, Nicole also mentioned a need for self-expression and connecting to others with similar life experiences and interests via social media – and hashtags. This notion of telling her "story" and experiencing other people's "stories" aligned with Nicole's

view of social media as an arena for creativity and self-expression. Nicole was from West Africa, so social media was essential for communicating with distant friends and family, but she also used hashtags to connect and follow other people from West Africa with similar interests and backgrounds. She used a specific hashtag for a phone code to connect to people from West Africa and express her cultural heritage:

I will hashtag #westafrica, just to let people know that I'm West African, that this is my cultural heritage. I will hashtag #237. 237 is my country code. I will hashtag that. Whenever you go to 237 you see everything about [my country], the flag. You know, just hashtags are a short form of telling who you are, but not completely writing a story.

She made "friends" with strangers on Instagram by using the hashtag, and though she did not believe that she used social media to express herself creatively, she had friends who used it for those purposes. Nicole really liked to see other people's life experiences, and she implied that Instagram satisfied this need more than Twitter:

We've all grown up in different households and we've been brought up differently, and I really find those topics interesting to me, like having to see what people view things as, like different views on topics and life and all of that. Those are the stuff that interests me.

In the end, Nicole reported not enjoying the use of Twitter. While she recognized that she had the option to post rather freely about what she wanted, she did not view the assignment as being something of interest to her. Though she acknowledged that she may have posted more with Instagram, Nicole's lack of motivation seems tied to this perceived lack of interesting topics. As she described it, motivation is a goal to strive toward as well as "[s]omething from within…[s]omething I can relate to…"

Interview with Daniel

Daniel is a 22-year-old criminal justice major who took the course at the recommendation of his girlfriend, who had taken it previously. Part of the reason he took the course was because, by his own admission, he was not "tech-savvy," and was "curious" as to how some technology worked, including the use of hashtags on Twitter. Daniel only tweeted four times during the course of the semester and retweeted a few other tweets. To his recollection, the assignment only asked for one post about their final project, so he was not concerned about his grade for the assignment. Daniel enjoyed the class, saying it was "pretty good" and that he learned a lot about technology over the course of the semester.

During the interview, Daniel confirmed that he only tweeted four times during the course, though he originally estimated that it was five times and that he had retweeted three or so other tweets, but this was not reflected in the screen captures, as only posts to the hashtag were captured. Though he considered himself a strong academic, Daniel did not seem worried about his low number of tweets and how it would affect his grade.

One of the few times he posted on Twitter was in relation to a class project about helping children read. Later in the interview, he mentioned wanting to help people with disabilities learn to hunt and fish, so the "helping" aspect of this project may have been more aligned with his interests, thus resulting in one of his very few Twitter posts. Daniel did not report feeling as connected to the regular content in the Twitter assignment, which he described as "talk[ing] about different educational critiques, education news, whatever." Though he understood he had the freedom to post whatever he wanted, he did not feel that he had much content to relate to, though he did express some excitement about posting one project he saw:

For example, I had a frog, a cut-out of a frog, with a hole in the center of it, and it was

kind of there to help a child read between the lines in a book, and I took a picture of that,

and someone said post it on Twitter, so that was one of the only times I posted on

Twitter.

Daniel felt some connection to his classmates, though he felt unable to connect with them

fully, given that he was one of only two men in the classroom. Like many of the participants who

were interviewed, he felt more of a connection in person than online. The face-to-face interaction

between classmates was important, and the sharing of "personal things" from each other's daily

lives increased the connection he felt with them, especially compared to social media:

When we're face-to-face we talk more about our daily lives or whatever, and the things

that we're experiencing, but the only time we talked about assignments, usually, was

mostly on Twitter or Facebook. That's the only time, that's the only thing that we talked

about when we were on social media. In the class setting, we really talked more about our

daily lives, I guess.

Daniel reported that, when doing online assignments, most students got online to do the

work and get out, as opposed to the face-to-face classroom, where he was motivated by working

next to them: "When you're in class, you have people beside you, and you see them working, so

it motivates you to work."

Though Daniel said he was not too "strict" in the area of social media security, he does

believe security concerns, including some of his own, keep people from spreading too much

personal information online. Even though he pointed out that personal information might have

helped him connect more with his classmates, he also mentions having an adverse reaction to

someone sharing too much personal information on social media:

I'd kind of have a red light, like, "Oh, that's odd." Sharing this much of herself. Why

does she want everyone to know this? I don't know. You kind of step back and get

thrown off a bit.

Daniel reported disliking Twitter for a variety of reasons, though he had never used it

before. He created an account for the course, and promptly deleted it after the course was over.

The deletion of his Twitter account might be meaningful; he did not delete the YouTube or

Tumblr accounts he previously created for an English course, even though both these forms of

social media were new to him.

As an "outdoor person" who valued time with his close group of friends and family,

Daniel had a negative perception of Twitter as a time-consuming annoyance:

I did not use it before. I was kind of annoyed with it because my friends they would just –

all they do is "Oh, tweet this. Tweet that. Let me tweet about tweeting." I saw that it

consumed their life a lot. I'm a real outdoors person. I love the outdoors. I love being

outside. I'd rather be enjoying the outdoors than sitting inside looking down at some

phone screen.

Daniel never succumbed to social pressure to join Twitter and suggested that this

pressure from others might even have pushed him away from the social media outlet, rather than

encouraging him to embrace it. This is similar to Nicole's perception that the constant presence

and discussion of Twitter by her peers prevented her from adopting the technology. For Daniel,

part of his refusal to use Twitter was his reluctance to "be out there:" "I like to keep to myself,

and I don't really like a large body of friends around. I like to have a tight group of friends, two

or three friends. I'm happy with that."

When asked to describe his preferred balance between sharing too much and too little personal information, Daniel's answer again revolved around close-knit family and friends, with an emphasis on pictures:

> I guess the social media that would fit me best would be basically be a social media that would only be family and friends, I guess. Like a family social media or a close friend social media that you could share pictures or whatever, just not something that's blatantly out there for the world to see.

> Though some close friends wanted him to join Twitter, Daniel saw potential for trouble and controversy, particularly from a professional perspective. As an athlete, Daniel said he was wary of being active on social media because "it can really bite you in the butt." Later, he added that "if you post the wrong thing, your future employer can see it, your teacher, other students, somebody, anybody can see it." Daniel worried about representing the university as a whole, due to his status as an athlete, and he believed that almost any type of post beyond a picture of family or friends might cause "controversy" or "light a fire."

As one might guess based on his social media preferences, Daniel found it hard to connect with people via Twitter, and social media in general, preferring face-to-face interaction or telephone calls. He spoke of it being difficult to get to know someone online, particularly with Twitter:

> I guess with Twitter, you don't really know the person. With face-to-face, when you interact with them, you can get a sense of who they are, of what they're like. But with Twitter and social media, I mean, who knows who's behind the computer and what they're really like. They could talk about who they are, but it's not really who they are.

This statement is in alignment with his previous comment about being unable to connect with other students online because of the lack of personal details. Daniel indicated that he never felt compelled to follow anyone on Twitter, beyond a few other students he knew from class.

In general, Daniel had little experience with social media beyond Facebook, which he used only to connect with a small circle of friends and family. He saw his girlfriend using Pinterest and "collecting" images, but he did not have accounts on either Pinterest or Instagram, even though he mentioned photos of family and friends being one of the only types of posts he felt comfortable "liking." Daniel also had little experience with hashtags and did not understand how they worked, except that they connected posts of similar interests. This lack of previous experience with hashtags did not seem to be an impediment to his posting, though, since he expressed a curiosity about them prior to the course and a willingness to learn how they worked.

One problem that Daniel encountered during the assignment was an inability to find content that he found personally relevant, given that his major was criminal justice and this course was on educational technology. When asked if he was motivated by class activities that were personally relevant, he suggested a preference for assignment content that he was "more passionate about." Daniel valued personal choice, autonomy, and independence above other aspects in assignments: "If there's something that interests me or I can connect with…yeah, I really prefer that over any assignment."

When he encountered information he found relevant, he was more likely to "like" it and interact with it online, and when he was allowed to post something related to his interests he reported feeling motivated:

Well there was actually an assignment we had – she actually let us pick something that

interested us – and I picked an assignment on what things could help disabled people,

people with disabilities, hunt and fish, and that's one thing I picked. And that's one thing I'm really interested in because I love to hunt and fish, so there were some topics that I liked or retweeted on Twitter.

One particular use of social media in the classroom really seemed to engage and motivate Daniel. When asked if he had a blog, Daniel shared a story of a specific use of the blog-like social media site Tumblr for an English class, where he was allowed to post articles on his interests. Because of his major and his interest in becoming an FBI agent, Daniel reblogged articles about terrorism and drug cartels, storing it as information he would come back to later, much like Pinterest was used as a knowledge storehouse by Marion and Karen. Unlike his Twitter account, Daniel did not delete his Tumblr account, and he described himself as "highly motivated" by this assignment, which culminated with him creating a YouTube slide show movie based on the information he gathered. Before the Tumblr assignment, he had never pursued the creative and self-expressive aspects of social media before, and he found this assignment motivating because he was able to choose the materials, and it aligned with career goals: "It's just a really big interest for me and something I want to do in my career. I want to be an FBI agent, and just those two things really interested me." Daniel also said he might have been motivated more on Twitter if he had been able to post content more related to his interests.

Similarly, Daniel suggested that he might have been more motivated to work with someone else if they had similar interests, clarifying that it might not have resulted in immediate friendship; this sentiment is in line with his stated preference for a small, close-knit group of friends and family, in social media and in life. He mentioned hunting and fishing as an example: "If it was over something like hunting and fishing and we worked together on something like that then I would be highly motivated. But that's probably…that might be the only thing that

motivated us to work together like that."

When asked to define motivation, Daniel explained it as an internal drive, resulting from a sense of competitiveness with himself and others. Motivation might have been its own reward for Daniel, as well as a need for competence: "I don't want to do something that's not going to motivate me, or work hard on something that I know is not going to come out right or if it's wrong or something." Numerous times throughout the interview, Daniel cited the importance of close friends and family in his life as motivators. Relatedness and fulfillment were something he gained from these relationships:

I guess, like, a brotherhood. Love. A sense of being fulfilled. Accomplishment. I could

say…I relate to them a lot. Somebody I could relate to, and those are people that make

me happy. And I always like to make them happy.

Daniel said that having a choice – and the independence and self-reliance that comes along with that choice – was his most important internal motivator and the source of his competitiveness. Though he cared somewhat what others thought of him, he felt more motivated by his own internal drive and personal passions.

During this assignment, Daniel's inexperience with technology worked both in his favor and against him simultaneously. He reported feeling worried because of his inexperience, but also motivated to learn new technologies, even though he did not fully commit to using Twitter in the long term. Near the very end of the interview, he put it succinctly, with a laugh: "I just don't really like Twitter."

Constant Comparative Process

The constant comparative process (CCP) was used to analyze the Twitter data and check it against all other data with the goal of generating propositions to explain the course Twitter activity and answer the research questions.

The first stage of the constant comparative process is initial coding, often called "open coding," wherein the researcher examines each piece of qualitative (or quantitative) data, selecting passages in the text and coding them along different thematic lines. In the initial coding stage, new themes emerge throughout the process. The second stage of the CCP is the axial coding stage, where the themes, concepts, and broader codes identified in the first stage are developed further, and greater relationships between the data and the codes themselves are analyzed. During the third stage of the CCP, selective coding, the researcher develops propositions and theories from the themes and codes that emerged during the first two stages. One of the key tenets of the CCP is that all data are coded against each other equally, so that codes and themes emerge through the repetition of comparison (Charmaz, 2006).

During the initial coding stage of this research, all texts, including the open-ended survey responses and the interview transcripts, were coded for various themes that emerged from the data. Almost every piece of data was coded a number of times as new themes and concepts were found. The previous descriptions of the qualitative data serve as a record of the initial coding process, highlighting a number of the relevant themes that came from the surveys and interviews.

Each document was coded a number of times, and the codes and coded text were placed into folders and hierarchies using the qualitative software NVivo. Some codes were merged and folded into each other as they presented similarities, though initial codes were preserved as much

as possible, shifting between nodes and axes as the data were analyzed. These codes were highlighted in the preceding qualitative analysis and descriptions in the chapter.

As the coding continued, themes tended to fall within or close to one of the subsets of the IMI and SIS, so these subsets were used to guide the grouping of data during the axial coding phase of data analysis. This grouping also made it easier to compare the quantitative data from the surveys against the tweets themselves and the coded qualitative data. Not every bit of qualitative data was worthwhile or easily fit into one of the themes in close proximity to the survey subscales, so axes were created for these.

From these axial codes, a number of propositions were generated from the data that helped explain the interaction of the different data sets as well as the general activity displayed in the hashtag discussion assignment. The axial and selective coding of the data, as aligned with the most similar subsets of data from the IMI and SIS and relevant data from the TUS, are presented in a conceptual map (see Figure 5) that loosely shows the interactions between simplified axial codes and the survey subscales, in what is known as "abstract situational map" (Charmaz, 2006, p. 118). Axial codes explore the relationships, interactions, properties, and dimensions of the emerging categories, "[reassembling] the data you have fractured during initial coding to give coherence to the emerging analysis" (Charmaz, 2006, p. 60).
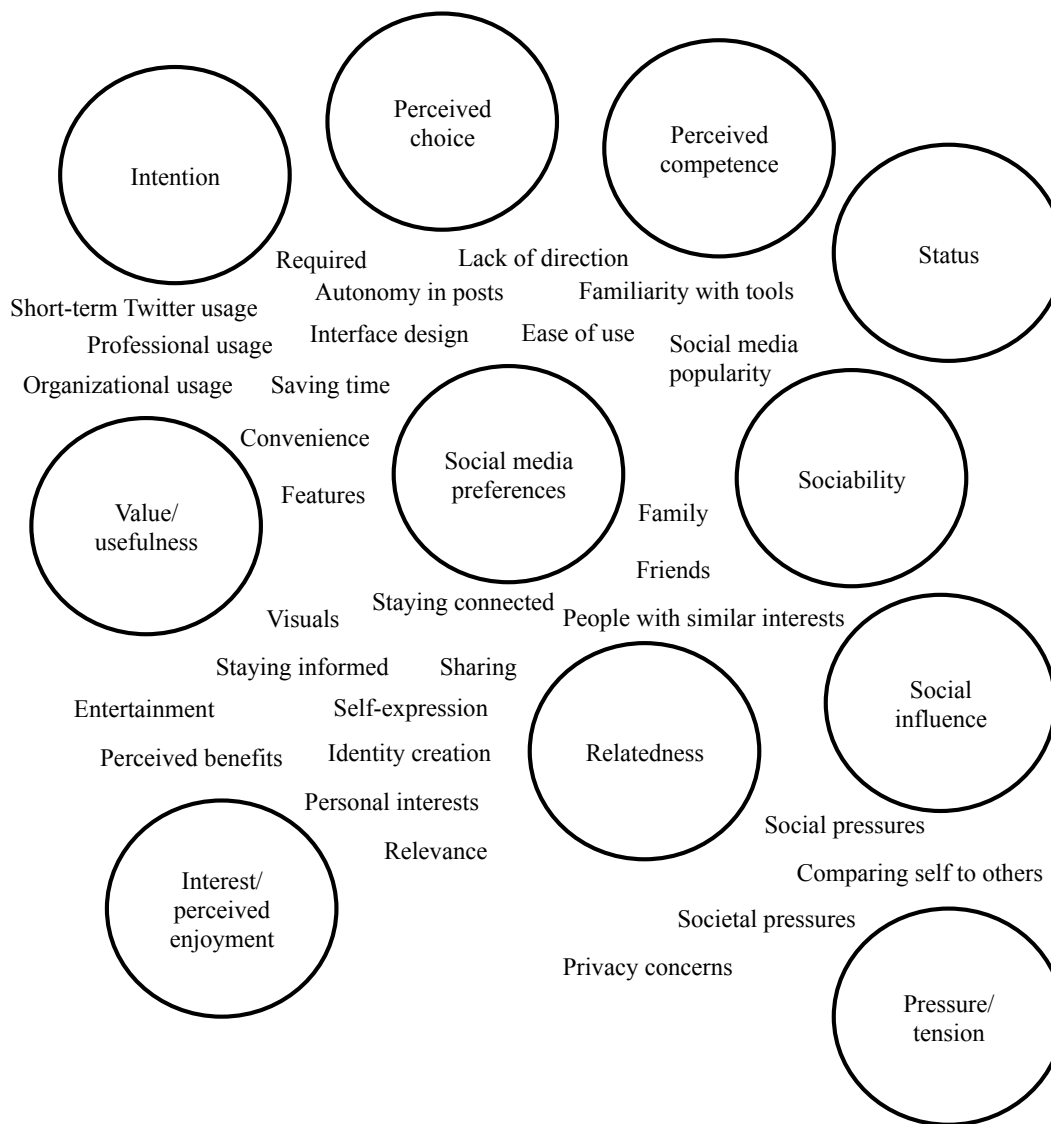
Figure 5. Conceptual map of the interactions between codes, themes, and survey subscales.

The constant comparative process is often used in studies that are not grounded theory, as is the case here. Because of this, the selective coding stage was used to formulate general propositions from the data rather than theories, highlighting possible relationships and proposing new directions of thinking for future research. These propositions as to what affected participant motivation – generated mostly from the qualitative data – are discussed below.

The requirements and goals of the assignment were unclear

A recurring theme that emerged from the coding of the interview data – and supported by the disparity in participant tweeting patterns and the low amount of Twitter activity overall – is that the assignment was unclear and ill-defined, and that the requirements of the assignment were not clear to the participants in the course. Nicole and Daniel believed the assignment to be only a few tweets; Daniel believed he only had to tweet once. Marion and Karen tweeted much more, but did not mention a requirement of 40 tweets and seemed opaque on the details of the assignment.

Another complicating factor was the open-ended nature of the assignment, which left the decision about what content to post to the participants. The Twitter hashtag assignment gave them the freedom to post whatever they wanted, as long as it related to the course on educational technology. According to the tenets of Self-Determination Theory (SDT), this autonomy might have motivated them; however, the participants reported having trouble finding content to tweet and wished for more interaction with other students. This may have been due to the fact that many of the participants in the course were not education majors, ands so educational technology was not a significant area of reported interest. The contents of the hashtagged tweets generally revolved around in-class activities, such as group projects and guest speakers. It should be noted that some interview participants reported feeling most connected to one another during these group projects and in-class activities. It may have been that when given the choice to post whatever they wanted as it related to instructional technology, the participants chose to post the most convenient items available to them, but also that their interactions with other students were what made them feel most connected and engaged during the course.

Face-to-face interactions fostered relatedness

The participants reported some levels of relatedness with their fellow students on the Relatedness subscale of the IMI, but this kind of community and relatedness was not demonstrated in the Twitter activity, especially given the fact that there were few retweets and sharing of each other's posts, and no replies to one another. Daniel reported feeling more connected to his fellow classmates in face-to-face settings because of the sharing of personal information between them. Similar views were expressed by other participants who were interviewed, specifically as it related to the Twitter accounts created for the class that only posted about class-related matters. Because these accounts presented very little relatable personal information, they were unable to connect to one another in the way that they were in class, where they could see each other as people with similar interests.

Likes and favorites vs. retweets and sharing vs. replies

Every example of social media has levels of acknowledgement on their site that take the form of interactive "like" (e.g. Facebook and Instagram) or "favorite" (e.g. Twitter) buttons that, when selected, acknowledge that someone "likes" or "favorites" your posted content. Retweets and sharing mean, as Daniel defines it, "I can really relate to this and this tweet can go out of my own mouth." Retweets, reblogs, repins, and sharing all mean curating other's content by placing it on one's own social media feed, which goes beyond giving it perfunctory approval via "favorite" or "like." Replies or other forms of conversation meant "going the extra mile," as Nicole put it, which might explain why there were no replies to any tweets using the hashtag. Because no one was very connected to one another, no one felt like they could go the "extra mile" to reply to a tweet. Not surprisingly, "favorites" were the most deployed method of acknowledgment during the assignment, as a majority of the tweets to the hashtag were

"favorited." However, Karen and Nicole said that a favorite or like means very little, as it was merely an acknowledgment that something had been read, not an actual favorite anything.

Twitter might not have been an appropriate choice for all students

All four interviewees shared a unique characteristic in that they all were non-Twitter users, though that is not out of line with the TUS, where only 8 out of 19 participants reported using Twitter 2 or more times a week. Three of the interviewees had never used Twitter before, while Nicole was dragged back to it, after leaving for a variety of reasons, least of which being she was just not a "Twitter person." Many of the participants on the TUS were negative in their feelings toward Twitter, seeing little benefit or value to it, feeling constrained by the character limit, and wary of its argumentative reputation.

The negative perception of Twitter among survey participants and interviewees alike might have played a part in decreasing motivation because they felt they had little choice, and they might not have chosen Twitter as their first choice, as Nicole admitted. Daniel reported a real dislike of Twitter – "I just really don't like Twitter" – that was not assuaged by his using Twitter in the course, and he promptly deleted his Twitter account after the course ended. Marion and Karen both created accounts for this course, and a few interviewees reported that some classmates created Twitter accounts specifically for the course, in lieu of using their personal accounts.

The open-ended questions in the TUS showed that participants were amenable to the idea of using social media in education. They were friendlier to this notion than they were to the idea of online discussion forums, but Twitter was not nearly as popular as assumed by the instructors and researchers upon creating the assignment and research study. In fact, Instagram or Facebook might have been better choices in terms of saturation among the participants, though there were a

few participants, including Nicole, who seemed to feel like social media usage in the classroom is a distraction, possibly because school is invading her personal space.

If the participants were truly given a choice in the matter, they might have chosen a social media more in alignment with their class goals and their own interests, in addition to one that was more popular and included their friends. Twitter's nearly 50% usage rate, coupled with the amount of negative opinions toward it, means that Twitter might have been a poor choice to try to build a discussion online, at least for this course.

The importance of friends and family

The importance of friends and family, particularly close friends, on the social media lives of the participants was a constant theme that emerged from the qualitative data. Friends and family are consistently cited as the reason for adopting a social media, as well as the reason for leaving one. Simply put, the participants use the social media where most of their friends are, though pressure from overly persistent friends to join social media can have the opposite result of the one intended. Nicole, Daniel, and Karen all reported being annoyed by friends who pushed them too hard to join a social media or behave in a certain way on it. In general, though, the presence of friends and family guided participants to social media and keeps them there. Behind this guiding force is something larger, the feeling of relatedness that these friends and family bring, something that was missing from the interactions between the participants in the hashtag.

The importance of visuals

The importance of visuals to participants, particularly pictures, cannot be overstated. All four interviewees mentioned the importance of visuals in their social media lives, and three of them were active on the photography-based social media sites, Instagram and Pinterest. This mirrors the data gathered in the TUS on social media usage; Instagram was one of the three most

used social media sites while Pinterest enjoyed similar levels of popularity as Twitter among TUS participants. For Daniel, pictures were less "controversial" than articles and other posts, and Marion used pictures to tell stories. 21% of the tweets to the course hashtag included pictures in them, mostly of in-class activities. As evidenced by the popularity of the picture and video messaging app Snapchat in the TUS, pictures are the way that participants prefer to communicate, and Twitter, while able to handle images, is not primarily viewed as a picture-oriented social media.

The diversity of social media needs and uses

An important consideration arising from the data analysis is that the participants all used social media in different ways to meet individual needs. For example, Nicole sees social media as a place for self-expression, creativity, and connecting with others with similar interests, while Marion and Daniel were more concerned about the professional aspects of their social media use. Marion used LinkedIn and Facebook exclusively because of professional concerns, and Daniel was worried about appearing unprofessional on social media by posting or interacting with "controversial" materials. Even within the same social network, participants reported using it a different way. The sole social media of consistent use was Facebook, which he used to connect to friends and family, while Marion, wary of posting too much personal information online for privacy and security reasons, preferred to use Facebook as a "photo album," to use her description. Some participants saw using Twitter as a way to communicate with each other about assignments while others use it for information gathering purposes, such as checking it for news and trending topics. Future assignments using social media might need to take these into account.

Summary

Four participants were interviewed after the semester was completed using a semi-structured interview protocol in a condensed version of the methods recommended by Seidman (2006). They were asked about their motivation and social influences in their every day social media use as well as the use of Twitter and the hashtag in the course. They were also asked about their pre-existing attitudes toward online discussions, Twitter, hashtags, and social media in general. The Constant Comparative Process (CCP) was employed to develop propositions from the data from the themes that emerged during open coding of the interview transcripts and open-ended survey questions (Charmaz, 2006). From this process, a number of propositions emerged from the coded data.

Two of the participants who were interviewed – Marion and Karen – had higher levels of Twitter activity than most of their peers. The other two participants who were interviewed – Nicole and Daniel – had low levels of Twitter posting activity, though both felt they had satisfied the requirements of the course. Though Nicole had used Twitter before, none of those interviewed were current Twitter users and all of them expressed some skepticism or wariness toward using Twitter. In Daniel's case, he viewed Twitter negatively, and the use of it during the course reiterated these feelings. Two of those interviewed – Daniel and Karen – deleted their Twitter accounts immediately upon the course cessation. Given the mixed feelings toward Twitter – and its lower-than-expected popularity – exhibited in the TUS, in addition to the negative perceptions of it from the participants who were interviewed, Twitter might not have been the best choice for this course. Even though participants who were interviewed acknowledged having freedom to tweet what they wanted, they all struggled to find content that interested them to post. Throughout the interviews, the participants recounted differing versions

of the requirements of the hashtag assignment, suggesting that the goals of the assignment were unclear.

Participants who were interviewed all felt that relatedness was built more easily in a face-to-face environment than online. The lack of personal details posted to the hashtag made it hard for the participants to relate to one another, even though they did find a connection in face-to-face environments. Interviewed participants reported that Twitter accounts created for class were difficult to connect with because they only included course-related materials. The importance of friends and family to social media choice and usage emerged in all of the interviews, as well as the open-ended responses to the data, suggesting that finding other social media users to relate to – in this case, friends and family – is an important driver of social media choice.

Another proposition that emerged was the difference between favorites, likes, and retweets on various social media, as well as the various uses of social media among participants. Though this research did not set out to examine these differences in these forms of online interaction, the lack of replies and the preponderance of favorites demonstrated that these interactions mean something different to each participant. Furthermore, participants reported varied uses for social media, as each individual social media met different needs of theirs. Marion and Karen used Twitter as an organizational and reminder tool, while Nicole's preferred purpose for using social media – primarily through Instagram – was self-expression and connecting to those with similar interests, such as her African heritage. Daniel reported using Tumblr as a storage space for information related to his career goals. A related proposition that emerged from the interviews and data was the importance of visuals and visual-related social media, possibly related to the participants' innate needs for self-expression, creativity, or

relatedness. Pictures and visuals came up repeatedly in the data as an important component for

communication and relatedness online.

CHAPTER VI

DISCUSSION

The purpose of this study was to investigate the activity and motivation of students

participating in an online discussion hosted on a social media site, outside of the traditional

Learning Management System (LMS). Students in an instructional technology course were asked

to create an ad hoc discussion group using a "hashtag" on the social media Twitter. Hashtags are

created on Twitter by placing a poundsign symbol (#) before a word or phrase with no spaces.

Upon creation of this hashtag, all Twitter posts – called "tweets" – that contain this hashtag ~~will~~

are grouped together by searching or clicking on it. During the assignment, participants were

required to post to their Twitter accounts – commonly called "tweeting" – 40 times over the

semester. They were to tweet their thoughts about the course materials, activities, events and

related articles, using the designated course hashtag. In addition, they could post information

about in-class activities. Each participant was a designated "Tweeter" or Twitter leader for one

face-to-face class out of the semester, during which the participant's task was to motivate

discussion among their classmates on Twitter by posting about in-class experiences and other

topics related to educational technology.

At the beginning of the semester, the participants were given a survey – the Technology

Usage Survey (TUS) –to evaluate their technology usage patterns and feelings about online

discussion groups. Another two surveys – the Intrinsic Motivation Inventory (IMI) and Social

Influence Survey (SIS) – were administered at the end of the course to evaluate participants'

intrinsic motivation and the effect of social influence, respectively, on their participation in the

hashtag assignment. The study was informed by a theoretical foundation of Self-Determination Theory, Social Influence Theory, and the concept of Personal Learning Environments.

The main research question for this study was: What factors influence student motivation in a hashtag-based discussion forum? To investigate this question, the following subquestions were used to guide this research:

a. How do participants engage in the hashtag discussion assignment?

b. What motivational and social influence factors affect participants' activity when they post to the Twitter hashtag?

c. How do previous experience with and attitudes toward social media and online discussion forums affect participant motivation in the hashtag-based discussion forum?

This chapter examines the findings associated with each of these subquestions, and explores the implications of these findings on theory and practice. Also discussed are the limitations of the study, and the implications of these findings for future research.

Research Question 1a

How do participants engage in the hashtag discussion assignment?

All indications are that the assignment failed to generate meaningful discussion among the participants using the hashtag and that the activity and motivation levels with the assignment were poor. The level of activity on the Twitter hashtag used for the course was low, with a mean number of posts per participant of 9.54, much lower than the required tweets of 40 per semester. Even when including the tweets from other course sections that simultaneously used the hashtag, not a single participant in any of the classes replied to another participant's tweet, meaning there

was no two-way communication involving either text or photos. Though the IMI suggested

students felt competent doing the assignment,

Participants had two other methods by which they could interact with others online –

"retweets" and "favorites." When a Twitter user "retweets" another user's post – or "tweet" –

they are taking that content and posting it to their own wall, sometimes with added commentary.

This curatorial way of sharing content is another way people communicate via social media.

However, only 9.29% of the posts were "retweeted." Twitter has a button on each post for

"favorites," in addition to one for retweeting. A high number of posts received so-called

"favorites" – 71.67%. As the interviewees described, "favorites" are considered similar to "likes"

on Facebook and Instagram. Their use in online discussions, as explained by participants in the

interviews, represented a low level of interaction, often signifying little more than an

"acknowledgment" of a post. The superficiality of this interaction is similar to the superficiality

often observed in online discussion forums (Gao, Zhang, & Franklin, 2013).

As the results of the IMI Intention subscale showed, 52% of participants did not intend to

use Twitter for the long term. Instead, participants created Twitter accounts specifically for the

course, and many of them deleted their Twitter accounts afterwards. These Twitter accounts

contained little personal information to help participants relate to one another, so information

posted to the hashtag was mainly about class. The tweets were usually posted during class

periods, and most often remarked on in-class activities like group work, guest speakers, and

projects, many times including photos of fellow classmates.

With little more than superficial levels of communication between the participants, and a

complete lack of back-and-forth discussion, there was no way to evaluate the depth of the

Twitter discussion using rubrics designed for online discussion. The two rubrics that were

expected to evaluate the "reply depth" of the discussion on Twitter could not be used due to the lack of Twitter "replies." A Twitter "reply" means a higher level of communication than "favorites" or "retweets." When selecting "reply" on Twitter, the user must write text back – still under the 140 character limit – in response to another user's posting. This is the primary form of two-way communication on Twitter. There were zero replies on the hashtag during the course of the semester, indicating little back-and-forth conversation.

Research Question 1b

What motivational and social influence factors affect participants' activity when they post to the Twitter hashtag?

Based on the data collected, the following factors may have contributed to the low motivation and activity in this assignment: a lack of relatedness between participants, a lack of relevant and relatable content to discuss, and not enough autonomy in technology choice. Unclear or poorly understood assignment goals were also a potential contributing factor.

In general, the IMI and SIS showed neutral responses on most of the survey subscales, though participants reported low levels of pressure and tension from the assignment. They felt less autonomous overall, according to the IMI, even though the interviewees felt they had the freedom to post whatever class-related material they wanted. This freedom was not enough to inspire autonomy, as Twitter did not give some of them the autonomy to engage with the assignment in the way they wanted, as indicated in the interviews, where every interviewee had preferred social media instead of Twitter.

The data from the IMI, the SIS, and the interviews indicated that relatedness, often described in terms of "connection" or "closeness," was missing from the assignment. For

example, when presented with the statement, "I feel close to my classmates" in the Relatedness subscale of the IMI (see Table 14), 11 of the 18 participants responded either "Not At All" or "Somewhat True." This lack of relatedness emerged in the qualitative data as well, where interviewees like Daniel noted that there was a closeness between participants in the face-to-face classroom that was not replicated online. The results of the surveys and interviews indicated that participants do make connections with friends, family and even strangers online, sometimes even through the use of a hashtag. However, the data show that similar connections were not made with classmates during this assignment.

In terms of social influence, one of the major findings that came from the qualitative data was the importance of friends and family and how this influenced participants' decisions to select and use social media. This corresponds with the rather high scores on the SIS Sociability subscale, which measured the importance of sociability in participants' social media use and choices. Some of the participants, as evidenced by the interviews and the survey data, found it difficult to connect to one another online, though they reported less of a problem making connections in the face-to-face learning environments. Daniel noted in his interview that the sharing of personal information helped him relate more to his fellow students and that he did not get that connection online in this assignment, in part because of this lack of personal sharing. Nicole expressed similar thoughts, with her comment that people tweeted to the hashtag only about class and not about anything she found relatable. She spoke of the class as "a job" to get done, and only posted tweets a few times. While Marion and Karen used Twitter considerably more than Daniel and Nicole did over the course of the semester, none of them reported feeling motivated to tweet beyond what was required of them. In fact, they reported a lack of interesting material to tweet about for the assignment, or at least a lack of material they found relevant,

relatable, important, or beneficial. In non-educational settings, the interviewees all indicated engagement with other social media and spoke of why they were motivated to use it. In all of these cases – Karen and Marion with Pinterest, Nicole with Instagram, and Daniel with Tumblr – they chose social media because of its perceived value and usefulness to them, the closeness and presence of friends and family, and content they found relatable and relevant. Without these characteristics present in the tweets they saw posted to the hashtag for the course, they were not motivated to even check for tweets posted with the class hashtags. The likely reason is that the participants did not feel a sense of relatedness, which is necessary for intrinsic motivation as proposed by SDT (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000a).

The hashtag assignment was included as part of the students' participation grade in the course, and was presented as a fairly open-ended assignment. They were asked to post 40 tweets to the hashtag during the semester, and to make sure comments and links were related to the course. However, many of the interviewees reported differing perceptions of what was required to fulfill the assignment, suggesting that either the goals may have been unclear or that the assignment seemed to have so little consequence that it was not remembered well. Even the two interviewees who tweeted very little – Daniel and Nicole – expressed the belief they had satisfied the requirements of the assignment. In fact, Daniel believed the assignment was merely to set up a Twitter account and tweet once. Further complicating the matter may have been the lack of guidance in what to post. Many participants struggled to find things to post about that were both relevant to the class and themselves. The lack of personal interest in the subject matter kept participants from engaging with the assignment and coming back to the hashtag on their own, leaving it containing mostly procedural class materials and posts from in-class activities.

As for autonomy of technology choice, the Perceived Choice subscale of the IMI indicated neutral results on perceived autonomy. However, the autonomy described in that subscale dealt mostly with the choice of completing the assignment itself, and not necessarily with autonomy of technology choice or the choice of what information to tweet. The research suggests that, while participants reported a perceived freedom of choice in what they posted to the hashtag, this freedom may have been experienced as a lack of direction, leaving some participants struggling to find materials to tweet and thus unmotivated. Furthermore, the negative attitudes toward Twitter – as discussed in the next section – may have played a role in lowering motivation and engagement with the assignment. It is possible that when the choice of technology was made for them, the participants' feelings about their lack of autonomy in the assignment were increased.

Research Question 1c

How do previous experience with and attitudes toward social media and online discussion forums affect participant motivation in a hashtag-based discussion forum?

Based on the evidence gathered in the Technology Usage Survey and interviews, attitudes and previous experience with certain social media did seem to have some influence on participant activity and motivation regarding the hashtag-based discussion forum, though to what extent remains unclear. Some pre-existing negative attitudes toward Twitter might have had a negative effect on participant motivation, given the low levels of Twitter activity to the hashtag over the semester.

Previous experience with and perceptions of hashtags did not seem to have an effect on motivation. Though hashtags garnered a few negative comments in the Technology Usage Survey (TUS) – "I just think hashtags are really lame" being a strong response – overall the

feeling toward them was neutral-to-positive. One of the participants who was interviewed, Nicole, even used hashtags as a means of self-expression. However, previous use of hashtags and experience with them did not appear to be related to any increased activity on the hashtag, at least in Nicole's case. Also, the social media where the hashtags were used mattered. Participants used hashtags in different social media beyond Twitter (e.g. Instagram), and an interviewee spoke of social rules for how hashtags were to be used on specific social media.

Online discussion forums in LMSs generated mostly neutral-to-negative responses from participants who had previous experience with using them in courses. This indicates that the rationale for the study – moving online discussions from LMSs to social media – was not without merit, given the neutral-to-negative response to online discussion forums. However, this ambivalence and negativity toward online discussion forums did not translate into positive feelings toward Twitter.

Again, as was discussed above, Twitter was not as popular as assumed and was not met with the predicted positive response to it as an alternative to LMS-based online discussion forums. Twitter did not adequately replicate their own usage patterns as reported in the TUS, with Twitter being less popular than Instagram, Facebook, Snapchat, YouTube, and even Pinterest in terms of participant use. Twitter was chosen under the assumption that it was a popular social media with which the participants would be familiar, ameliorating concerns about competency and autonomy as they related to typical online discussion forums in LMSs. However, all four of the participants who were interviewed had been resistant to using Twitter, and three of them deleted their Twitter accounts after the course concluded. With such short term use, it would be difficult to build up a personal presence on the site that participants could see and develop a relatedness or "connection," as they liked to describe it, with each other.

Implications

There are several implications that can be drawn from this research. One major implication is theoretical. The theory of Personal Learning Environments (PLEs) posits that a positive impact can be made on student activity by placing online learning spaces in social media and Web 2.0 environments that resemble the students' own Internet use and personal preferences (García-Peñalvo, Conde, Alier, & Casany, 2011; Martindale & Dowdy, 2010; Sclater, 2008; S. Wilson et al., 2007). The PLE concept came out of the rise of Web 2.0 and social media tools during the 2000s, intended to bolster online education by allowing students more control and customization over their own learning environments (Attwell, 2007; Baig, 2013; Barbera & Reimann, 2013; Martindale & Dowdy, 2010; Sclater, 2008). Each student's PLE might be different from other students', somewhat customized to their communication needs and technology preferences (Attwell, 2007; Baig, 2013; Buchem, Attwell, & Torres, 2011; Martindale & Dowdy, 2010). These online learning spaces bridge the gap between formal and informal learning environments and might increase self-regulation and motivation because of increasing student interest in their learning environment (Dabbagh & Kitsantas, 2012; McLoughlin & Lee, 2010).

This study, while contributing to the small amount of research on PLEs, does not succeed in confirming or clarifying whether a core thesis of PLEs is true, that using a loose grouping of tools such as blogs, wikis, social media, or photo-sharing site might increase participant activity. The low level of activity exhibited during the Twitter assignment suggests that replacing an LMS-based discussion forum with a social media-based one may not automatically result in increased activity. In this study, the choice of a Twitter hashtag as the environment for an online discussion might have even lowered activity levels.

Prior work surrounding PLEs has centered on their creation as informal learning spaces that "harness the power of a range of tools, services, and content outside of the institution that learners can use during their studies" (Sclater, 2008, p. 4), often made up of various tools and networks of the learner's preference (Sclater, 2008; Wilson et al., 2007). It is possible this concept of PLEs may not have been fully tested in this research, since participants lacked the autonomy of choice as to how they constructed their PLE, and were given only one social media tool for the assignment, rather than a variety.

As mentioned before, the decision to use Twitter was made before the class began, and was based on the faulty assumption that Twitter was popular with participants. In fact, the data collected in this study revealed that Twitter was notably less popular among participants than other social media, including Facebook, Instagram, and Snapchat, and many participants expressed dissatisfaction at its required use in the assignment. Though participants may have had choice in what they posted for the assignment, the lack of autonomy of choice in the tool they used may have contributed to the low engagement levels.

Because the single social media PLE created for this assignment was not flexible in terms of tool choice and was incongruent with participant usage patterns, it could be argued that a PLE was never established during the course of this assignment. A broader, more flexible, multi-tool PLE as described by PLE proponents (García-Peñalvo et al., 2011; Martindale & Dowdy, 2010; Sclater, 2008; Severance et al., 2008; S. Wilson et al., 2007; Scott Wilson, 2008) would strive to incorporate a variety of tools and social networks, including, but not limited to, Pinterest, Instagram, and Facebook. All four of these social media also use hashtags to guide discussions around similar topics and create ad hoc groups such as the one created in this assignment. Future PLE assignments might consider using multiple social media platforms or using different social

media tools from week-to-week, in accordance with the "functionality mashup" of PLEs described by Severance (2008, p. 1).

The implications related to Social Influence Theory are less clear, at least as exhibited by the data gathered in the SIS and the qualitative responses. Social Influence Theory (SIT), drawn from the work of Kelman (1958, 1961), can help us understand why students might choose to adopt and continue to use a social media (Cheung et al., 2011; Li, 2011). Social Influence Theory proposes that *identification*, *internalization*, and *compliance* are three important social influences (Kelman, 1958, 1961; Zhou, 2011). Identification manifests itself when people are influenced by a need for identification with similar groups or individuals (Kelman, 1958, 1958, 2006; Zhou, 2011). Internalization occurs when influenced by those with similar values (Bagozzi & Lee, 2002; Kelman, 1958, 1961, 2006; Li, 2011), and compliance is when one accepts influence to achieve a desired response – or avoid a negative one – from a person or group (Kelman, 2006).

I tested these social influences and others via the SIS, which is comprised of a series of five subscales – Sociability, Intention, Perceived Enjoyment, Social Influence, and Status. The majority of these subscales produced neutral responses from the study participants. Social influences explained why people joined and preferred certain social media, but they did not explain their reticence to use it in online education, especially with regards to the hashtag assignment. The importance of friends and family as a social influence emerged from the qualitative data, and the Sociability Scale on the SIS, more than any other portion of the survey data, confirmed these assumptions. However, the implications for education are less clear here, given that fellow students are rarely friends and family. Other subscales of social influence showed neutral responses, including those related to status and social influence. It is not clear

from this research if social influence had any effect on the participants' engagement with this activity.

Perhaps the largest theoretical implication of these data is the importance of relatedness, as defined by Self-Determination Theory (SDT), on participant motivation when engaging with the hashtag assignment. SDT proposes that extrinsic and intrinsic motivation are both motivators, but intrinsic motivation is more powerful because it satisfies the intrinsic needs of *autonomy*, *competency*, and *relatedness* (Chen & Jang, 2010; Covington, 2000; Deci & Ryan, 1985, 2000; Deci et al., 1991; Dickinson, 1995; R. M. Ryan & Deci, 2000a, 2000b).

Autonomy motivates learners by satisfying their need for independence and control over choices, engaging them and inspiring their creativity, while less autonomy can have a negative effect on motivation (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000a, 2000b). Another intrinsic motivation need is *competency*, that we are motivated by feeling and appearing competent (Deci & Ryan, 2000; R. M. Ryan & Deci, 2000a, 2000b). Finally, and perhaps most relevant to this study, is the notion of *relatedness*, one's connection to one's peers in an integrated community (Bauer & McAdams, 2000; Deci et al., 1991; Ryan & Powelson, 1991).

Participants who were interviewed spoke of failing to feel connected to other participants online while being able to connect and relate to them face-to-face, in part because they were more easily able to share personal details. Similar to this response, the Relatedness subscale of the IMI turned up neutral-to-slightly-positive overall results, but the question most targeted toward relatedness toward other participants – "I feel close to my classmates" – returned a mean response of 2.89, below the other responses in the same subscale. The participants who were interviewed all felt more connected to each other while face-to-face in class, reporting difficulty "connecting" – a common word of theirs – online. Daniel, a participant, noted the lack of

personal details in the Twitter accounts as one reason for that lack of connection, and reported that he was able to hear personal stories and relate more to his fellow students face-to-face in class. Most of the content in the hashtag was about in-class activities, reflecting this lack of personalizing details from the Twitter accounts, many of which were created for the course. And perhaps the posting of in-class activities was a reminder of the relatedness they mostly felt with their classmates in class.

Another implication for SDT is that the other two intrinsic motivation needs of SDT – autonomy and competency – did not appear to have as much of an effect on motivation, though the Perceived Choice subscale was more negative trending than competency. The participants felt they had a choice in what to post, even though they had little choice in the assignment. The greater autonomy in what they could post often left participants searching for material to post that was relevant to them in a class that was outside their interests. Personal relevance, importance, and relatable content were all factors in what they chose to post and how much they interacted with one another. Though competency might have slightly affected motivation, the greater competency and autonomy issues might have to do with overall technology choice and the degree to which students get to choose the social media or tools that they prefer.

There are numerous potential practical implications for this research. Online instructors struggle to get students engaged in online discussions, in part because of superficial postings and a lack of engagement, among other reasons (Gao et al., 2013). For those instructors setting up new online discussion environments in social media, this research might help guide them in creating more effective, motivating online learning environments that can foster meaningful discussion. It must also be careful to survey their students to find out what social media and technologies they actually use, as they might not be knowledgeable of current social media

trends among younger students. Appropriately used social media in education might allow for

avenues for creativity and self-expression, which could be helpful in building relatedness online.

The lack of engagement and surface-level posting displayed in the data studied in this research

was influenced in some part by the lack of relatedness online between participants. Daniel

suggested that the reason for this was the lack of personal details presented by participants online,

preventing them from relating to one another. Online instructors must craft online environments

that allow for the sharing of relatable personal materials to build a community, while not

violating privacy concerns.

Another implication is that the participants have diverse ways of engaging with and using

social media to suit their individual purposes, preferences, and needs. An example that developed

from the interviews was of the various ways participants used Instagram, Pinterest, Tumblr, and

Facebook. These ranged from a knowledge storehouse, to a record of learning, to places for self-

expression. Daniel used Tumblr to archive some articles that he wanted to remember. Karen and

Marion used Pinterest to save ideas for later. Nicole used hashtags on Instagram to connect with

other West Africans. When teaching students online, it might be helpful for instructors to first

seek to know the usage patterns of their students and then modify their assignments to meet

student needs and behavior patterns.

Similarly, another implication from these data is that the curatorial aspect of certain

social media – including Twitter – should be used, especially in service of identity creation and

self-expression that might help online students relate to one another. Many of these social media

allow for the re-posting of other people's material to a user's own social media feed. Facebook,

Twitter, Tumblr, and Pinterest, among others, all have these kinds of tools, but Tumblr and

Pinterest are more visual and curatorial. Daniel, for example, enjoyed the curatorial aspects of

Tumblr, saving articles for later, while the other three interviewed participants all reported sharing and using other posted content to express themselves and their identities.

The implication here is that student social media profiles should contain enough personal material, while keeping privacy concerns in mind, in order to allow students to get to know one another online. Although the results from the IMI and SIS surveys showed that participants could relate to one another, the participants who were interviewed had trouble connecting to their classmates online because of the lack of personal material tweeted to the hashtag. Posts to the hashtag contained mostly content about class materials, and the participants found this hard to relate to, except, in a few cases, reminding them on a functional level about class activities. The creation of course-specific Twitter accounts was a complicating factor, as Nicole, Daniel, and Karen pointed out, as these accounts featured little personal data with which to relate.

This has implications for the creation of student PLEs. If students are to create or use actual PLEs then they might need to be given some flexibility to choose the tools and social media themselves with which they feel most comfortable engaging. Alternatively, the class as a whole could be more involved in that decision. This might increase Perceived Choice and Autonomy, leading to greater intrinsic motivation (Deci & Ryan, 1985; R. M. Ryan & Deci, 2000a). Their negative feelings toward a particular social media, like the ones evidenced in the qualitative data toward Twitter, must also be taken into account before assigning a social media-based assignment because the interviews and open-ended survey data suggested that being coerced into using a disliked social media might have a detrimental effect on motivation.

It is apparent from the interviews and the wide variance in Twitter posting activity that the requirements of the assignment were unclear. In future research and instruction, this assignment could be redesigned to increase student direction while also allowing them the

freedom to choose what to post. This research suggests that striking a balance between guidance, creativity, autonomy, relatedness, and more will be a challenge for educators using social media in education. Were this assignment to modified based on this research, it might be reconstructed into something similar to Junco et al.'s (2011) Twitter study, which did show that increased student engagement was possible with Twitter. Similar to Junco et al. (2011), the assignment would include a Twitter training session to make sure that all students were competent and knowledgeable in the tool before beginning. Karen, for example, admitted she did not know how to use Twitter's "reply" function. Other participants might have had similar problems or confusion, given their lack of experience with Twitter beforehand. Furthermore, directed assignments throughout the semester, much like the Junco et al. (2011, 2013) research, would be useful to remind students to post on Twitter and might sustain any conversation that emerged. Guidance, training, and assignments with concrete goals have been shown to increase engagement when using Twitter in the classroom (Junco et al., 2013, 2011). Mandatory posting requirements, subdivided over the semester, plus increased instructor interaction would also help, and instructors should encourage students to pursue more meaningful types of discourse, such as "replies," "reblogs," and "retweets," rather than only "likes" and "favorites."

Despite the various definitions and conceptions of PLEs, one agreed upon component of the PLE concept is learner technology choice (Arenas, 2009; Dabbagh & Kitsantas, 2012; Martindale & Dowdy, 2010; Sclater, 2008; Severance et al., 2008; S. Wilson et al., 2007). It could be argued that a true PLE was not created in this assignment because students were confined to one tool and did not have a choice in what tool to use. Future iterations of this assignment might benefit from allowing students to choose from a range of tools as well as one or two standardized platforms like Twitter or Facebook to use as a hub. The fragmented nature of

PLEs currently will likely prove to be a logistical hindrance for practitioners because student content will likely be found in a variety of social media tools (Sclater, 2008).

A balance between freedom of choice and logistical concerns is necessary to increase motivation and participation in the assignment, specifically concerning autonomy and relatedness. In the interviews, the participants all discussed having trouble finding information to post, even though they were given freedom about what to tweet, as long as it related to educational technology. Because many of the participants were not majoring or studying instructional and educational technology, they found it hard to find content to post. Daniel only posted once on his course Twitter account, but in another class he enjoyed the Tumblr assignment when he was allowed to post content related to his interests. Nicole was an active Instagram and hashtag user, but only tweeted seven times during this course. Because of these examples, practitioners should allow for opportunities for self-expression and the sharing of personal stories and relatable information on the social media accounts used in student PLEs, keeping in mind privacy concerns and student comfort levels with sharing personal information.

Educators should first survey students about their social media needs and current usage and then construct the social media assignments. This simple procedure will help to ensure alignment between the needs of students and the goals of the course. For example, the importance of visuals was a common theme among interviewees and survey respondents. Future assignments might use visuals as a way for students to begin discussions and express themselves, as well as use curatorial content to decrease the burden of having to generate new content with every social media post. Privacy concerns, along with varying student comfort levels with sharing personal information, might make this a good opportunity to use the curatorial aspects of

social media, as a couple of the interviewed participants noted that their social media feeds and the information they share is a reflection of themselves.

Though the Sociability subscale of the SIS and the Relatedness subscale showed that participants felt capable of relating to one another, the interviews showed that participants felt more related to their other classmates in face-to-face environments than in online environments. This was due, in part, to the sharing of personal information that happened naturally during in-class activities. The qualitative data showed that friends and family – those with whom participants might most likely relate – were important to social media choices. Future research and assignments involving social media need to have goals and tasks based on personalizing the social media accounts through self-expression. In addition, they should allow for students to retweet, reblog, curate, share, or repurpose other information, posts, and media that they deem relevant or important to them because this is a form of self-expression as well, as the interviewees noted. Even if the students all used social media accounts that were created for the course – which decreased relatedness between participants in this study – an assignment that helped personalize students' social media feeds might help them relate to one another and communicate more. Table 18 includes suggestions and recommendation for redesigning this – and other – activities to better implement PLE theory, SDT, and propositions that emerged from this research.

Table 18

Recommendations for Redesigning the Hashtag-Based Discussion Forum PLE

Recommendations for Redesign	Support from theory and research
Survey students at the beginning of the course to find out about their technology usage and preferences to better align the assignment to their choices. This would allow ownership of their social media choices and give the instructor the ability to choose technology whose	This might increase feelings of autonomy and perceived choice, as well as increase competence, possibly motivating students to use it more. It also increases pedagogical choices for the instructor (Dabbagh & Kitsantas, 2012; Deci & Ryan, 2000;

affordances best suit both the assignment and the students as well as their own. For example: the instructor surveys the students and finds out that they all use Snapchat, Instagram, and Facebook the most, so she decides to post course materials and reminders to Facebook, snapshots of in-class activities to Instagram, and visual course reminders to Snapchat.

Martindale & Dowdy, 2010; McElvaney & Berge, 2010; Sclater, 2008).

The students should be encouraged to interact with the content of the course by posting information with personal relevance to them beyond material related to the course. The use of curatorial information afforded by social media will be helpful for this assignment, as some students might be uncomfortable expressing themselves with their own content. For example: students might start the course with an assignment where they repost images to an Instagram hashtag that represent their interests. As the course progresses they post snapshots they take that relate to weekly themes.

This will avoid the problem of students creating social media just for the course, which depersonalizes accounts and keeps them from relating to one another, decreasing relatedness and motivation. This also allows for more visual sites like Instagram, which satisfy student needs for sharing and interacting with images (Dabbagh & Kitsantas, 2012; Deci & Ryan, 2000; Gilbert & Dabbagh, 2005; R. M. Ryan & Deci, 2000a).

Allow the students to create true personal learning environments spread across a few different popular social media of their choosing, united by a common hashtag. All students will use a central hub social media or LMS site for logistical concerns like class announcements. For example: one student might use Tumblr and Instagram while another uses Snapchat and Pinterest to post about course material. There are hashtags for all of these social media that are course specific, and the class has a Facebook group that serves as a central hub for course announcements, relevant readings, and questions.

This will create an environment more congruent to the one that matches their own technology use and will not force students to use technology to which they have an aversion. This could have positive motivational effects, is cheaper than expensive proprietary sites, and is truer to societal technology use (Arenas, 2009; Martindale & Dowdy, 2010; McElvaney & Berge, 2010; Sclater, 2008; Severance et al., 2008).

The assignment should have clear goals, both for what kinds of content to post as well as the frequency of social media posting. Activities such as weekly themes and more instructor interaction, as well as a more formalized "Twitter Leader" system, would help keep students active on social media.

The research showed that participants perceived the assignment goals differently, and they had a hard time finding content to post. This possibly lowered motivation in the assignment. Junco (2011, 2013) demonstrated that instructor interaction helped engagement on a course Twitter-based discussion.

Limitations

The number of participants in the surveys (16 and 18) was even lower than anticipated when the study was first proposed. The sample was a convenience sample of the students who took the class, so it was not very purposive in nature. Because this research focused on one course section, generalizability to other classes in other subjects is difficult, as this particular

combination of participants and instructor might have generated a different sort of community than in other attempts.

A problem with all research into motivation is the fact that it relies heavily on self-reported data. The IMI survey used in this study relied completely on self-reporting. The participants could have said they were motivated when they really were not. Even tying student activity to motivation is problematic because many different aspects of an assignment can motivate students. Students might be motivated intrinsically by the educative benefits of doing schoolwork, but they might also be motivated by receiving a good grade on a project or the fact that it is a mandatory assignment. Motivation rarely exists in pure extrinsic or intrinsic forms, rather falling on a continuum. Deciding whether students were motivated by intrinsic or extrinsic factors or some combination thereof was difficult to discern using the given instruments and data analysis techniques.

A central limitation to this research design is that it did not measure, beyond questions asked in interviews, how much the use of the chosen social media tool influenced student motivation. In a pilot study, Pinterest was selected as the discussion tool used in the discussion forum, and the instructor reported high activity of discussion as compared to similar courses. However, Pinterest is a popular social media site, and the participants enjoyed using it, possibly making them more motivated by the assignment. Furthermore, the curatorial structure allowed users to express themselves visually, often using repurposed materials, which is certainly different from most discussion boards in online education. This research study used hashtags and Twitter, which is considerably less visual than Pinterest was. Because of this, the factors mentioned above in relation to Pinterest might not be present in Twitter.

Another limitation of this study was that it was particularly tied to certain technologies. The pace of innovation online is a rapid one, and a concern was that great time and energy would be expended researching a Web 2.0/social media tool in online education only to find that it became obsolete and replaced with another tool. It is important to look at this case more as a phenomenon of an open online educational environment and less as a phenomenon of the tool itself, and not get too tied to a technology that could become obsolete within a few years. In researching technology, this is a reason for caution, and, to some extent, it cannot be helped. It is more important to focus on the instructional and the classroom environment and less on the individual technologies themselves.

Another complicating factor for this study was that other classes were also using the hashtag for their discussions, though it is not clear in which manner it affected the study. Two of those interviewed reported checking on the hashtag to see what other classes were doing, but it is hard to judge if a community was built when there was so little activity on the hashtag, even between all of the different class sections. The interviewed participants all mentioned that the lack of personal identifiers on Twitter made it hard for them to connect online, so a number of students in other classes – many of whom might have created the Twitter account for class – might have exacerbated this problem.

The assignment itself was of low consequence to the participants, as evidenced by some of the attitudes toward it displayed in the interviews. It was a small portion of their participation grade and might not have been even counted by instructors at the end of the course. In addition, the goals of the assignment were communicated and/or interpreted in different ways, as discovered during the interviews. The participants who were interviewed all had different conceptions of the requirements of the assignment.

The Technology Usage Survey ended up being an inadequate measure for pre- and post-test purposes, though it did reveal much pertinent information about social media use. It could have asked more information about what kinds of things motivated each participant or allowed them to make more of a choice in the social media used in their PLEs. It was originally a survey used in class to gauge students' social media patterns, but, in retrospect, doing so would not have interfered with regular class activities. It should have been adjusted to focus more on motivation. In addition, some of the technologies listed in the survey, such as Digg, are now obsolete, and should not have been included in favor of technologies and social media such as Yik Yak, WhatsApp, or GroupMe.

Though the interviews yielded rich data, more of them would have been beneficial to better explain the low Twitter activity. All four of the interviewees had pre-existing negative or skeptical views of Twitter before the course started, if not little experience with this social media tool – and social media in general in Daniel's case. The TUS data showed that some participants used Twitter beforehand, so an interview with a participant who was an active Twitter user before the course might have provided different insights.

Another limitation with this study was the comparison of online discussion forums and Twitter hashtags as one-to-one equivalents of each other. As the semester and data collection progressed, it was clear that the two types of assignments were not analogues or replacements for one another. Future researchers interested in comparing tools and social media should attempt to compare social media and tools with similar features.

As a qualitative researcher, it is important to acknowledge research biases. For phenomenological researchers, this process is called *epoche*, or "bracketing," wherein a researcher does his/her best to set aside biases when conducting research (Mayan, 2009; Merriam,

2002; Moustakas, 1994). The researcher's perspective on social media might have been skewed as an active user of social media and Web 2.0 tools like the kind that were used in the study. The researcher has been active on Twitter for over six years and also participate in Instagram, Facebook, and other social media sites, and, because of this, the researcher tried to avoid making the assumptions that participants would use social media in a manner similar to my own. Not everyone uses social media in the same way, and they must not be judged differently because of this. I anticipated that I might become frustrated with participants' inability to use the tools in a manner that conforms to how I use social media. Furthermore, as a college instructor myself, I can become frustrated with students who do not fully participate in a course, so I had to suppress that instinct when analyzing the data. Participants might not have been motivated in an online classroom by a technology that I found motivating in my personal life. Furthermore, I worked hard not to conflate the tool and the assignment itself. Students may not have been motivated by the online discussion forum itself, regardless of whether it was set in social media or used hashtags.

My epistemological perspective leans toward the constructivist and phenomenological. I believe that it is difficult to find objective truths and instead find the truth, essence, or manifestations of a phenomenon in how people react to and participate within it. Because of the subjectivity of this perspective, it can be difficult to make claims of any sort as to the nature or essence of a phenomenon, though it can generate rich descriptions. I chose grounded theory as a foundational theoretical perspective for this research because I believe it mitigates some of this by offering a more systemic process through the constant comparative method to look for a rich description of the phenomenon in question. I understand, however, that there might be other ways of looking at these data that might bring about vastly different results, given different

theoretical perspectives, and I tried to bring those into the research if they offered new and interesting avenues for study and analysis.

Suggestions for Future Research

More empirical research on PLEs is needed. Although proponents of PLEs argue in favor of having students use a familiar social media in the classroom due to the expectation that their use will increase motivation, the research reported here does not support this (García-Peñalvo et al., 2011; Martindale & Dowdy, 2010; Sclater, 2008; Severance et al., 2008; S. Wilson et al., 2007; Scott Wilson, 2008). What PLEs are supposed to look like is loosely defined and not agreed upon in the literature. Research is needed to further define characteristics of a PLE, as well as to continue testing hypotheses of motivational effects of students creating PLEs in familiar online tools.

Further research is needed into what motivates and influences students to use social media and what kinds of needs these tools satisfy. Surveys such as the IMI and SIS are important to test intrinsic motivation and social influence, but they were not constructed with social media in mind. Even when modified, the surveys gathered as much data about the motivational effects of the assignment as they did the effect of social media on motivation.

More research is needed on developing better rubrics for judging the quality of social media posts and tweets, particularly as related to educational use. Beyond the difficulty of capturing the posts, the rubric chosen to analyze the screen-captures of the tweets, the Mean-Reply Depth Algorithm, used replies as its main criteria for online discussion post depth (S. H. Waters, 2009; S. H. Waters, 2008). Because the rubric was meant to analyze online discussion forum data, it was inadequate for the task of analyzing the quality and depth of twitter hashtag discussion because there were no replies. Retweets, repins, reblogs, favorites, and likes, among

other types of social media interaction, are not analogous to typical online discussion forums

housed in LMSs, so new ways of analyzing these interactions are needed. Research into the

meaning of these recent modes of social media interaction might help researchers and educators

understand how students relate and communicate outside of class.

Another suggestion for future research would be to further test the effects of pre-existing

student attitudes about a particular social media tool and how this affects motivation in social

media-based online education. Though this study attempted to draw connections between these

factors, more research is still needed into pre-existing attitudes toward a social media and how it

effects participation. Even if the material was of interest or relevance to the participants – and

this was not always the case with this class and its subject matter – some participants might have

rejected the assignment because of their negative perceptions of Twitter. This attitude was

exhibited by the strong negative reactions toward Twitter by Daniel and Nicole, who were

reluctant to engage even though other social media captured their attention. Because of the

complexity of factors going into the participant's social media preferences and why they might

have engaged with the assignment, it will be important to further isolate the effects of pre-

existing attitudes of social media on motivation in assignments using these tools.

Another direction for future research would be a comparison of the differences (positive

and negative) between discussions held in Learning Management Systems (LMSs) and social

media, such as Facebook or Twitter. This research reported here suggests that Twitter is quite

different from other social media and LMSs in terms of discussions and discussion tools. Future

research should define and create a successful LMS discussion, however defined, find out what

motivates students to participate meaningfully in the discussion, and then attempt to replicate

that discussion in social media. This might be accomplished in the same course, with the first

half of the semester using an LMS and the second half of the semester holding discussions via social media of the students' choice. The affordances that made the discussion successful in an LMS should be the basis for setting up the discussion in whatever social media are selected for the subsequent discussion. This might allow for comparisons for various factors affecting discussions in social media and LMSs.

More research is also needed to examine the effects of identity creation and sharing of personal information on relatedness in online educational environments, especially in regard to the curatorial use of previously posted information. Interviewed participants reported being able to express themselves and gather information by retweeting, sharing, or reblogging – depending on the social media – other people's posts, representing their own tastes and interests in the process. Given the difficulty in creating relatedness with participants in the class, perhaps more research is needed into how students could use curatorial social media tools to express themselves online, especially given the popularity and ease-of-use of curatorial social media tools like Pinterest and Tumblr. Ease of use as a factor in social media choice and usage also emerged in the qualitative portion of the TUS, and this convenience and ease of use might have an effect on self-reported competency (Deci & Ryan, 1985, 2000; R. M. Ryan & Deci, 2000a).

Along these lines, further research into the importance of visuals in online discussions is suggested, given that interviewees all responded favorably to photographs and pictures as social media posts, in fact preferring them in most cases. Though this study did not set forth to examine what types of content and participants preferred to post, images emerged as an important form of communication for participants, in both their social media choices in the TUS and the large overall percentage of images that made up the total posts. Images seem to be a shorthand way of communicating personal information; as Nicole said it, pictures tell a "story."

Research into student online discussions and social media usage patterns is needed, as all of the participants who were interviewed spoke of using the same social media in different ways to satisfy a variety of needs. The divergent reactions to Twitter, hashtags, Facebook, and other aspects of social media in the surveys and interviews demonstrates that not all students have the same perceptions of the same social media, and they do not use these social media in the same ways. Research done in blogs used in the classroom determined that students used journals and blogs in different ways when given open-ended assignments, developing five typologies of behavior: "blogging avoidance; resource network building; support network building; self-sufficient blogging; and anxious, self-conscious blogging just to complete the suggested course activities" (Kerawalla, Minocha, Kirkup, & Conole, 2008). Similar patterns of participant social media behavior emerged in this study. More research into how students prefer to use a social media or Web 2.0 tool might help educators guide the design of instruction to better suit their student's needs.

Summary

The goal of this study was to answer the following research question: What factors influence student motivation in a hashtag-based discussion forum? Students in an educational technology course were asked to post tweets to a class discussion forum based in a Twitter hashtag. Students were given autonomy in what they were allowed to post, as long as it related to class, but they often felt they had little of interest to post. Participation in the Twitter hashtag assignment was low, with zero back-and-forth discussion between Twitter users in the form of replies and only a little interaction. Some participants posted as little as once, and the assignment goals were unclear to each of them. In addition, participants who were interviewed reported feeling more connected to classmates face-to-face than online.

Twitter was chosen as the social media for this discussion because it was assumed to be more popular than it turned out to be, as discovered in the TUS. In fact, a number of other social media – all of which had strong visual components – like Facebook, Instagram, and Snapchat were more popular, mostly because more of their friends and family were more regular users of these than Twitter. In addition, many of those interviewed and surveyed had negative perceptions of Twitter before the assignment and these pre-existing negative feelings might have lessened motivation. Many of the students created Twitter accounts just for class and deleted them soon afterward.

The IMI and SIS surveys were administered to the participants after the course ended to measure various subscales of intrinsic motivation and social influence. The students did not report high or low levels of motivation or of social influence, though participants seemed receptive to connecting with classmates and being motivated by similar assignments. The lack of relatedness and motivation in general, as well as the absence of major social influences while doing the assignment, was borne out in the low Twitter posting and participation. This study shows that a lack of relatedness to the content and to fellow classmates online led participants to lack the motivation to engage in conversational uses of Twitter.

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APPENDIX A

Technology Usage Survey

Q1 This survey will collect data about your current technology usage, both in and out of instructional settings. Your input will help guide future research in online education. Your responses to this survey will be kept confidential and will not affect your standing in the course. Questions with a red asterisk are mandatory. All other questions are optional. The survey should not take more than 10-15 minutes. Thank you for your time and input.

Q2 What is your name?(Your name will be kept confidential and will only be used for tracking and follow-up purposes.)

Q3 What is your age?
- o Under 18 (1)
- o 18-20 (2)
- o 21-23 (3)
- o 24-27 (4)
- o 28-30 (5)
- o 31-39 (6)
- o 40+ (7)

Q5 Please fill in this table regarding your personal technology and social media use. Which of these technologies do you use and how often do you use them?

	Never (1)	Less than Once a Month (2)	Once a Month (3)	2-3 Times a Month (4)	Once a Week (5)	2-3 Times a Week (6)	Daily (7)
Blogger	❍	❍	❍	❍	❍	❍	❍
Digg	❍	❍	❍	❍	❍	❍	❍
Facebook	❍	❍	❍	❍	❍	❍	❍
Gmail	❍	❍	❍	❍	❍	❍	❍
Google Docs	❍	❍	❍	❍	❍	❍	❍
Google Drive	❍	❍	❍	❍	❍	❍	❍
Dropbox	❍	❍	❍	❍	❍	❍	❍
Instagram	❍	❍	❍	❍	❍	❍	❍
Twitter	❍	❍	❍	❍	❍	❍	❍
Kindle/Nook/eBook	❍	❍	❍	❍	❍	❍	❍
Learning Management System (e.g. eLC/Blackboard/Canvas)	❍	❍	❍	❍	❍	❍	❍
Pinterest	❍	❍	❍	❍	❍	❍	❍
Reddit	❍	❍	❍	❍	❍	❍	❍
Vine	❍	❍	❍	❍	❍	❍	❍
Podcasts	❍	❍	❍	❍	❍	❍	❍
Skype/Google Hangouts/video chat	❍	❍	❍	❍	❍	❍	❍
Snapchat	❍	❍	❍	❍	❍	❍	❍
iPhone/Android/Windows Phone/other smartphone	❍	❍	❍	❍	❍	❍	❍
Tumblr	❍	❍	❍	❍	❍	❍	❍
Wikipedia	❍	❍	❍	❍	❍	❍	❍
YouTube	❍	❍	❍	❍	❍	❍	❍
iPad/Kindle Fire/Nexus/other tablet	❍	❍	❍	❍	❍	❍	❍
Wordpress	❍	❍	❍	❍	❍	❍	❍
Adobe Creative Cloud/Photoshop/Illustrator/etc.	❍	❍	❍	❍	❍	❍	❍
Flickr	❍	❍	❍	❍	❍	❍	❍
Other	❍	❍	❍	❍	❍	❍	❍

Q6 Are there any other social media or technology you use regularly that are not listed above?

Q7 What factors make you choose to use a social media or technology?

Q8 What factors make you continue using a social media or technology?

Q15 What factors make you stop using a social media or technology?

Q9 Have you ever participated in an online discussion forum in an educational setting?
- o Yes (1)
- o No (2)
- o Other (3) _____

Q10 If the answer to the previous question was "yes" then let us know about your experiences with online discussion forums.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I like it when an online discussion forum is part of a class.	○	○	○	○	○
I like it when a class requires me to participate in an online discussion forum.	○	○	○	○	○
I like participating in online discussions.	○	○	○	○	○
I participate in online discussions and chat forums outside of an educational setting.	○	○	○	○	○
Online discussion forums help support my learning in online classes.	○	○	○	○	○

Q13 What are your general attitudes toward online discussion forums?

Q16 Are you familiar with hashtags and hashtag use in social media?
- o Yes (1)
- o No (2)
- o Not sure (3)

Q17 What are your general attitudes toward hashtag usage in social media, if any?

Q18 What are your general attitudes toward the use of social media in education, if any?

Q19 May we contact you for follow up interviews?
- o Yes (1)
- o No (2)

APPENDIX B

Intrinsic Motivation Inventory & Social Influence Survey

Intrinsic Motivation Inventory
The following items concern your experience with the task. Please answer all items. For each item, please indicate how true the statement is for you, using the following scale as a guide:

1	2	3	4	5	6	7
not at all			somewhat true			very true

Interest/Enjoyment
_ I enjoyed doing this activity very much.
_ This activity was fun to do.
_ I thought this was a boring activity.
_ This activity did not hold my attention at all. (R)
_ I would describe this activity as very interesting. (R)
_ I thought this activity was quite enjoyable.
_ While I was doing this activity, I was thinking about how much I enjoyed it.

Perceived Competence
_ I think I am pretty good at this activity.
_ I think I did pretty well at this activity, compared to other students.
_ After working at this activity for a while, I felt pretty competent.
_ I am satisfied with my performance at this task.
_ I was pretty skilled at this activity.
_ This was an activity that I couldn't do very well. (R)

Effort/Importance
_ I put a lot of effort into this.
_ I didn't try very hard to do well at this activity. (R)
_ I tried very hard on this activity.
_ It was important to me to do well at this task.
_ I didn't put much energy into this. (R)

Pressure/Tension

_ I did not feel nervous at all while doing this. (R)

_ I felt very tense while doing this activity.

_ I was very relaxed in doing these. (R)

_ I was anxious while working on this task.

_ I felt pressured while doing these.

Perceived Choice

_ I believe I had some choice about doing this activity. I felt like it was not my own choice to
   do this task. (R)

_ I didn't really have a choice about doing this task. (R)

_ I felt like I had to do this. (R)

_ I did this activity because I had no choice. (R)

_ I did this activity because I wanted to.

_ I did this activity because I had to. (R)

Value/Usefulness

_ I believe this activity could be of some value to me.

_ I think that doing this activity is useful for getting me to think about creativity.

_ I think this is important to do because it can improve my job skills.

_ I would be willing to do this again because it has some value to me.

_ I think doing this activity could help me to improve my teaching strategies.

_ I believe doing this activity could be beneficial to me.

_ I think this is an important activity.

Relatedness

_ I felt really distant to my classmates. (R)

_ I really doubt that my classmates and I would ever be friends.   (R)

_ I felt like I could really trust my classmates.

_ I'd like a chance to interact with my classmates more often.

_ I'd really prefer not to interact with my classmates in the future. (R)

_ I don't feel like I could really trust my classmates. (R)

_ It is likely that my classmates and I could become friends if we interacted a lot.

_ I feel close to my classmates.

Scale Description

The Intrinsic Motivation Inventory (IMI) is a multidimensional measurement device intended to assess participants' subjective experience related to a target activity in laboratory experiments. The instrument assesses participants' interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, and perceived choice while performing a given activity, thus yielding six subscale scores.

Scoring information for the IMI. To score this instrument, you must first reverse score the items for which an (R) is shown after them. To do that, subtract the item response from 5, and use the resulting number as the item score. Then, calculate subscale scores by averaging across all of the items on that subscale. The subscale scores are then used in the analyses of relevant questions.

The Social Influence Survey was created by Li (2011) to assess the effects of social influence on online social network acceptance.

Social Influence Survey

SC1 I can stay in touch with others using the web site

SC2 I can find out what is going on with others using the web site

SC3 I can maintain friendship with others using the web site[a]

SC4: Sharing things (e.g. feelings, knowledge, opinions) with others through the web site

ST1 improves my image among them

ST2 improves my status among them

ST3 makes me becoming a more valued member of my social group. (new)

ST4 increases my popularity among them (new)

PEJ1 I have fun using the web site

PEJ2 Using the web site provides me with a lot of enjoyment

PEJ3 I enjoy using the web site[a]

PEJ4 It is boring for me to use the web site[a] (reverse coded)

SI1 My friends think that I should use the web site

SI2 My classmates think that I should use the web site

SI3 The people in my social group think that I should use the web site

INT1 I intend to use the web site again shortly

INT2 I predict that I will use the web site again in the short term

Notes: SC: Sociability; ST: status; PEJ: Perceived Enjoyment; SI: Social Influence; INT:

Intention; [a]Item dropped

All questions will be scored on a Likert scale between 1 and 5, with 1 being "disagree" and 5

being "strongly agree."

APPENDIX C

Responses to the Question "What are Your General Attitudes toward Online Discussion Forums?" from the Technology Usage Survey

When its required, I find it really annoying

I think they are helpful especially in an online class.

it is an easier way to engage students and connect with them. Seeing as how it is how most people communicate, it is more likely that students will keep up with their studies.

I think they are helpful because they help the students excel even after the class time is over.

I think it can be useful in a class setting, but I don't like it being required for a class because that causes people not to put forth effort and leave non-useful comments.

I haven't had the best experience with them, and to be honest, I feel they are a waste of my time that I do not have.

I didn't mind it

I think they could be useful, but I still would rather learn or discuss things in a different manner.

I don't always feel that they are always effective.

Online discussion forms can be extremely beneficial to class participation if people respond more with "Great post. I agree with your idea."

I like online discussion boards because I am not usually the type of person to share my opinions in class, so I like to be able to share my opinions in an online forum. I don't like when teachers require ridiculous amounts of online discussion posting to the point where students are literally making up things to write. It is better when the conversation flows naturally and is enjoyable for all involved.

I really don't have a positive or negative view on discussion forums.

I think that they can be used for educational purposes and help keep students updated with their classes. It is also a good way to stay connected or meet others with the same interests on those discussion forums.

They are very helpful for some students and a waste of time for others. I believe it should be an option for every student but not a requirement for anyone to participate. Bonuses should be given to encourage participation.

I am indifferent about them. If i know what we are discussing then i am fine with participating. If I don't know the topic then I prefer to not talk about it.

I don't have much interest in them and I have never found them very engaging.

APPENDIX D

Responses to the Question "What are your General Attitudes toward Hashtag Usage in Social Media, If Any?" from the Technology Usage Survey

I think that they should only be used on twitter or instagram, not Facebook.

I think they are funny. They connect people, places, and ideas.

I think they are cool when you can click on it and see other pictures or tweets that are the same topic. We used them for my sisters wedding and could see all the pictures people instagramed throughout the night. I think it is really annoying however when people don't know how to use them and hashtag every single word. like what? no.

I didn't understand it for a long time because I was not familiar with Twitter, but I think it can be a great way to build communities now.

I believe they get you out there, and you make connections with things and people that you wouldn't normally make.

the are fun

I think they are extremely effective for creating a community of people who are interested in similar things. Hashtags allow people to connect with others who share similar interests.

I used to love them, and I've slowly grown out of them. It depends on what it is about.

When used properly, hashtags are a good way to connect with people.

I am not a big hashtag user, but when I have been curious about world events, etc. I will sometimes type in a hashtag on twitter to read what other people are saying about it.

Im not too familiar with hashtags.

Sometimes people use too many hashtags in regards to their post, which can make them annoying. However, when they are used to actually categorize the social media that they are using I love it. It makes things way more organized and easier to find things relevant to what I am searching for.

They make posts creative and give the audience an Idea of what the author wants people to see.

I love hashtags. I just recently discovered the use of them and why they are special, and I think it's a great idea.

I think it can both enhance the experience, but also get in the way of the content being shared.

APPENDIX E

Responses to the Question "What are your General Attitudes toward the use of Social Media in Education, If Any?" from the Technology Usage Survey

I like it to a certain extent.

I think that social media is such an integral part of our world that using it in education is a must!

I think that if it is used as a way to get people engaged, stay active, and work in groups then it is helpful. If it is all online then it could be harmful. It is also good to use for example, Pinterest to get ideas for teaching lessons and how to set up a classroom. News websites can come in handy when looking at current events and you can watch a video about it in class and then discuss it after wards

I think it can be beneficial for engaging students interest, but I also believe it can be a distraction - or even an unfair advantage over those who do not use it typically.

I believe to a certain extent it can be one of your greatest assets, and it can also be one of your biggest/largest obstacles.

Its a more fun way of learning than just reading notes out of a book and writing for days

I don't think social media is necessarily effective in education, but I believe it is important for creating important connections.

I think that it's a good source to help students with remembering assignments and becoming involved.

Social media can be useful for education, but yet it can also be a hindrance to education.

I really enjoy the use of social media in education because it is becoming one of the most popular form of communication between people of all ages, therefore it is very applicable in schools/education as long as it is used appropriately.

I like the use of social media in education.

I think that it can be very beneficial. It is a great way to connect with students and keep them up to date with assignments. Also, it makes it easier for students to get into contact with their teachers and/or other students. However, I think people have to keep in mind that they are on a social media site and that everyone can see what they are posting or sending to their teachers and/or others on the social media site.

They are very helpful and should be encouraged.

I think it is great because all kids are using social media nowadays and it is just a way for teachers and classrooms to stay connected and use todays technology to their advantage.

Depending on the setting it can be very useful, but it also is not always necessary or useful.

APPENDIX F

Open-ended responses from the IMI/SIS

I enjoyed using twitter in the classroom setting.

I think Twitter is a good way to keep friends in touch as well as increase participation on things like group projects. I do not use twitter often for personal use because I do not feel like I have the time to keep up with it.

Using Twitter in the classroom helped the students and teacher to connect on a higher level. We could tweet back and forth about what happened in class, after class, in the world, etc. It really made for a great tool in the EDIT 2000 class.

I don't feel as though Twitter or hashtag usage helped me connect or interact with classmates, but I did enjoy the project throughout the semester because it was a way to highlight the main points of the day.

Twitter was interesting and at times useful for this class. I do not use Twitter for anything other than this class.

Using the hashtag in the classroom made keeping up with the activities that we did in class a lot easier. It was a more efficient and convenient way to make sure that I was on track with the rest of the class and see what the other students in the class were doing. It also provided an easier way to bond with my fellow classmates and other students that were taking the class at a different time-slot.

i really dont enjoy using twitter, i dont know how to do it well and i wish it wasnt used so widely in the education world

I have really enjoyed Twitter within the classroom. It makes class more interesting.

It was cool to use twitter in a classroom setting and find hashtags that related to schools and teaching.

I have used Twitter in the past for personal use, but it became something to keep up with and something that I no longer enjoyed so I got rid of my personal account. I set up the new account for this class and felt that it was more of a task than something I enjoyed doing. I think that it could be really useful in some settings, I personally just do not enjoy using it very much. Having the updates to check on from other classmates about what was done in class each day was helpful, but I also think that there are more effective ways to keep track of this other than Twitter.

The Twitter usage was a good way to catch up, and make sure that you stayed up to date on all that was going on in class.

APPENDIX G

Mean Reply Depth and Mean Qualitative Measurement rubrics

The researchers' intents were to use the Mean Reply Depth (MRD) formula and the Mean

Qualitative Measurement (MQM) rubric, two correlated measures of threaded discussions

(Sandie Hailey Waters, 2008, 2009).

Mean Reply Depth

The MRD formula is the following:

$$\bar{d}_{crude} = \frac{\sum_{i=1}^{n} r_i}{n}$$

d_{crude} is the MRD for the group of messages, r is the reply depth of the ith message, and n is the

total number of messages in the group. Because there were no replies during the semester, the

MRD was always zero for these posts.

Mean Qualitative Measurement

The MQM, listed below, is a rubric used to judge post quality in a threaded discussion. This

rubric proved impossible to use for this study, much like the MRD formula, because most of the

discussion posts are judged as being part of a larger conversation with other participants.

Because no posts connected with the other participants during the Twitter assignment, all of the

Twitter posts would have been judged "low quality" posts.

Synthesized Rubric and Emergent Qualitative Themes for Determining Mean Qualitative Measurement

Category/theme	Description	Quality
Interactive		
A=5 points	Student always takes a leading role in discussions; always demonstrates knowledge of content; always includes outside references; always works to synthesize other's comments; always posts on topic questions; always makes comments that generate good conversation or new possibilities.	Always
B=4 points	Student often takes a leading role in discussions; mostly demonstrates knowledge of content; mostly includes outside references; mostly works to synthesize other's comments; mostly posts on topic questions; mostly makes comments that generate good conversation or new possibilities.	Often
C=3 points	Student sometimes takes a leading role in discussions; sometimes demonstrates knowledge of content; sometimes includes outside references; sometimes works to synthesize other's comments; sometimes posts on topic questions; sometimes makes comments that generate good conversation or new possibilities.	Sometimes
D=2 points	Student rarely takes a leading role in discussions; rarely demonstrates knowledge of content; rarely includes outside references; rarely works to synthesize other's comments; rarely posts on topic questions; rarely makes comments that generate good conversation or new possibilities.	Rarely
F=1 point	Student never takes a leading role in	Never

discussions; never demonstrates knowledge of content; never includes outside references; never works to synthesize other's comments; never posts on topic questions; never makes comments that generate good conversation or new possibilities.

Category/theme	Description	Quality
Grammar and Spelling		
A=5 points	Posts have no grammar or spelling errors.	
B=4 points	Posts have 1 grammar or spelling error.	
C=3 points	Posts have 2-3 grammar or spelling errors.	
D=2 points	Posts have 4-5 grammar or spelling errors.	
F=1 point	Posts have 6+ grammar or spelling errors.	

Category/theme	Description	Quality
Timeliness		
A=5 points	Posts are made in a timely manner giving others the opportunity to All respond; posts are made throughout the life of the thread; student participates in 90% of available sessions.	All
B=4 points	Most posts are made in a timely manner giving others the opportunity Most to respond; most posts are made throughout the life of the thread; student participates in 80% of available sessions.	Most
C=3 points	Some posts are made in a timely manner giving others the opportunity Some to respond; some posts are made throughout the life of the thread; student participates in 70% of available sessions.	Some
D=2 points	Few posts are made in a timely manner giving others the opportunity Few to respond; few posts are made throughout the life of the thread; student participates in	Few

60% of available sessions.

F=1 points   No posts are made in a timely manner   None
                      giving others the opportunity to None
                      respond; no posts are made throughout the
                      life of the thread; student participates in
                      less than 59% of available sessions.

APPENDIX H

Semi-Structured Interview Protocol

This semi-structured interview protocol was used to guide the interviews. Participants were also asked about their individual work for the assignment as well as anything that emerged from the various survey data.

Semi-Structured Interview Protocol

Interview question	Investigating	Literature
Describe your social media activity before taking this course. Were you familiar with the concept of social media hashtags before taking this course? What was your perception of them? What was your overall perception of Twitter before taking this course? What was your perception of Twitter and hashtags after taking this course? What were your impressions of the hashtag discussion forum? What was your overall perception of the Twitter hashtag assignment? Do you like the use of social media in the classroom?	Personal Learning Environments and previous social media experience	(Buchem et al., 2011; García-Peñalvo et al., 2011; Martindale & Dowdy, 2010; Sclater, 2008; S. Wilson et al., 2007; Scott Wilson, 2008)
How motivated did you feel to post on social media as part of the assignment? What motivates you to participate in social media? What makes you to choose to use or reject as social media? Did you feel a sense of community with the other students? Why or why not? Did you feel like you were able to relate to them? Did you relate to them more online or face-to-face? What were the requirements of the assignment and do you feel that you satisfied them? Did you feel that you had a choice in what you posted to the hashtag discussion group? Why or why not? How would you describe your participation during the hashtag discussion group? How comfortable were you with using social media in the classroom? How did other students' activity influence your posting habits?	Intrinsic motivation and social influence	(Deci & Ryan, 2000; Kelman, 1958, 1958; Li, 2011; Richard M. Ryan et al., 1983; R. M. Ryan & Deci, 2000a)

APPENDIX I

Constant Comparative Coding Process Sample

This is a simplified but real example of the coding process used for this research, as prescribed by the Constant Comparative Process. Exporting all of the codes from Nvivo was challenging and produced lengthy sets of data. For a fuller view of the axial and selective codes, see Figure 5 and Chapter V.

An example of coding with the Constant Comparative Process.

Face-to-face interactions fostered relatedness.

Selective Coding

| Lack of connection and relatedness to classmates online. | Greater personal connections during face-to-face classes. |

Axial Coding

| Lack of personal information about other students | Most tweets were about classwork. | Twitter accounts created for class. | Able to relate to classmates. | Shared personal details in class setting. | Felt more connected to classmates face-to-face. |

Initial Coding