AN INVESTIGATION OF THE RELATIONSHIPS AMONG SOCIALLY INTERACTIVE TECHNOLOGIES, COMMUNICATION COMPETENCE, SOCIAL COGNITION, AND FORMAL WRITTEN DISCOURSE

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The current research project called upon a two-study design to examine college students’ use of socially interactive technologies (instant messaging programs, online social networking websites, blogs, and text messaging applications on cell phones). The first study was implemented to examine the frequency and form of college students’ use of socially interactive technologies. The second study investigated whether the informal interactive written discourse typical of socially interactive technologies is permeating college students’ more formal writing.

Using this two-study design, college students’ responses from a media use questionnaire were collected for Study I and examined in tandem with results from a quantitative content analysis of two formal messages written by students during an experimental computer laboratory session for Study II. The current investigation was couched in a framework based on the communication competence and social cognition literatures. These disparate fields were called upon together within an ecological schema provided by the theory of affordances to focus on the ways internal and external factors might contribute to communication outcomes in formal writing situations.

The first study’s results revealed that socially interactive technologies are generally popular among the college students in the current sample. Results from Study I also revealed that among the students in this sample, college grade point average and levels of need for cognition were negatively related to the frequency with which students use certain interactive media. The second study’s results revealed that frequent use of socially interactive technologies in general, and certain formats in particular (text messaging and instant messaging), was consistently associated with the use of particularly informal written communication techniques. Specifically,
problems with formatting as well as the inclusion of a nonstandard orthography and grammatical mistakes were all significantly related to frequent use of socially interactive technologies among the students in the current sample. Study II also revealed that multitasking on the computer while writing the two formal messages was significantly related to problems with formatting as well as the inclusion of grammatical mistakes in the two formal documents.

The consistent relationships among socially interactive technology use and decreased communication competence in two formal writing situations suggest that further concerted attention from communication researchers regarding the possible relationships between socially interactive technology use and formal written discourse is warranted.
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INTRODUCTION

As advances to Internet technologies continue to proliferate, emergent ways to use networked computers continue to develop. Part of that development is the growth of what has been called Web 2.0 (Dominick, 2009), a burgeoning corner of the Internet and the interactive ways people are putting it to use. Web 2.0 is still an amorphous term but it generally refers to a second generation of web services noteworthy for collaboration, social networking, user-generated content, and other forms of computer-mediated human interaction (Dominick, 2009). Socially interactive technologies are an important segment of the Web 2.0 complex.

Socially interactive technologies (SITs) such as instant messaging (IM) programs, social networking websites (including Facebook and MySpace), blogs (especially journal style blogs as opposed to topical or knowledge blogs), and text messaging programs on cell phones and other mobile digital media are rapidly gaining popularity in the United States, especially among college students (Chung & Nam, 2007; Flanagin, 2005; Lenhart, Madden, & Hitlin, 2005). While instant messaging programs have been popular on college campuses in the United States since the early 2000s (Lenhart et al., 2005), text messaging and social networking websites are still gaining popularity as the first decade of the 2000s draws to a close (Goggin, 2006). Despite lagging behind countries like Norway, the United Kingdom, Japan, and the Philippines, young people in the United States are also increasingly using their cell phones to send text messages with the aid of short messaging services (Goggin, 2006; Herring, 2004). Furthermore, the popularity of social networking websites like MySpace and Facebook, online meeting spaces where users create profiles and develop personal networks that connect them to other users (Lenhart & Madden, 2007), continues to grow. In 2005, MySpace and Facebook were the fastest
and second-fastest-growing major websites on the Internet, respectively; Facebook was the seventh most popular website on the entire web as of 2006 (Baron, 2008).

All of these socially interactive technologies share a number of technological features and associated social usage patterns (Lee, 2007). Central to the current investigation is the notion that SITs afford similar forms of interactive written discourse (IWD) (Baron, 2008; Bryant, Sanders-Jackson, & Smallwood, 2006; Crystal, 2006). IWD is noteworthy in part because it extends written language beyond the confines of the classroom and printed media into a still developing digital domain home to a multitude of social communication practices (Matthewman, Blight, & Davies, 2004; Walsh, 2007; Wijekumar, Meyer, Wagoner, & Ferguson, 2006). About this issue Casaregola (2003) argues, “it is ultimately the microcomputer, with its integration of all the other modern technologies of representation, mediation, and communication, that now stands ready to reconstruct our basic understanding of the written/printed word” (p. 223).

SITs have ushered in this emergent brand of written language based partly on the playful and social nature of spoken language and partly on more formal written English (Baron, 2003; 2008; Crystal, 2006; Kress, 2003; Poster, 2001; Voida, Newsgetter, & Mynatt, 2002). It is unclear whether this emergent brand of written language represents a unique and nonstandard orthography when compared to writing with more traditional media like print (Crystal, 2006) or whether it is merely the latest permutation to written English, which is always changing due to myriad social and cultural factors including media change (Shortis, 2001).

Regardless of its debatable distinctiveness, IWD has emerged in part because SITs share text-making qualities that result from both that which the technological design of the media afford and deny their users as well as the socially and culturally agreed upon conventions associated with the use of these technologies (Hutchby, 2001; Shortis, 2001). The theory of
affordances (Gibson, 1966, 1977, 1979/1986; Norman, 1990; 1999), discussed in greater detail below, posits that the attributes of a technological tool like an SIT constrain the possible interpretations and behaviors associated with that tool (Hutchby, 2001). That is not to say that the technology determines human behavior but rather it sets boundaries on what behaviors are possible (Hutchby, 2003). The theory of affordances will be used in the current research project to better understand how the technological and social attributes of SITs and college students’ use of these technologies relate (or do not relate) to students’ discursive writing practices in more formal settings.

The interactive written discourse of socially interactive technologies forms out of the dynamic tension between the nature of the technology and the aims and expectations of the user (Crystal, 2006; Lewis & Fabos, 2005; Shortis, 2001; Voida et al., 2002). After conducting a textual analysis of sixty-one instant messages written by college students in a laboratory setting, Voida and her colleagues (2002) conclude, “In our instant messaging texts, there was evidence of tension arising from the near-synchronicity of instant messaging, a characteristic shared with verbal communication, and users’ desire to make the interaction feel asynchronous, as with written communication” (Voida, Newstetter, & Mynatt, 2002, p. 189). The ecological theory of affordances, with its attention to the ways technologies merge with their users’ idiosyncrasies against the backdrop of the social environment to lead to distinct behaviors (Norman, 1999), should prove beneficial as a means to understand the relationship between interactive written discourse and other forms of college writing.

In addition to the notion that IWD features a blend of speech and writing is the idea that language mixes with other modes of communication (i.e., image, audio, hyperlinks) and media (i.e., World Wide Web) as users multitask (Shortis, 2001). Socially interactive technologies are
rarely stand-alone media and instead are most often used as people complete other tasks and engage in other leisure activities on the Internet. That writing competes with other modes has implications for the nature of the discourse found there (Kress, 2003; Lanham, 2001). For example, SITs reduce the likelihood that young people will engage in silent, sustained reading and writing (Kapitzke, 2003; Selfe, 1999). Despite requiring reading and writing, the discourse exchanged with emergent media comes in short, unedited snippets (Cart, 2007). The corpus of research on multitasking with digital media reveals mostly deleterious effects on successful task completion (Baron, 2008; Wijekumar et al., 2006; Wilson, 2005).

Numerous scholars have argued that written language is changing due to multimodality and myriad other social and technological affordances of SITs (Baron, 2008; Casaregola, 2003, Crystal, 2006; Kress, 2003; Lanham, 2001; Poster, 2001; Walker, 2003). If this is indeed the case, the question then becomes whether the discursive tendencies associated with interactive written discourse will transfer into writing that takes place in more formal communication situations (Boerger, 2005).

The social nature of SITs, including the way people are able to communicate synchronously using instant messaging programs and social networking websites, leads to a fast-paced spontaneous brand of written communication (Crystal, 2006). Interactive written discourse also encourages more relaxed textual formatting complete with colloquialisms, abbreviations, reduced punctuation, uncorrected typing errors, and loose wording and sentence structures (Baron, 2003; Crystal, 2006). Baron (2005) uses her students’ work to show there are few discernable stylistic differences between the written prose and casual speech of many young communicators. The sociolinguistics scholar argues that SITs and other Internet technologies afford writing that is “sloppier than traditional equivalents” (Baron, 2005, p. 22), reinforce an
emphasis on informality, and lead to indifference towards style, spelling, and grammar in other written works. It is reasonable to think that the linguistic conventions of SITs and other Internet applications might seep into more traditional written language (Baron, 2003, 2005, 2008).

Each communication medium carries a particular grammatical structure that affects what is considered an appropriate message for that space (Meyrowitz, 1998). A series of empirical studies couched within the modes of communication perspective (Boerger, 2005; Chapanis, Ochsman, Parrish, & Weeks, 1972, 1977; Clark & Brennan, 1991; Cohen, 1984; Ochsman & Chapanis, 1974; Stoll, Hoecker, Krueger, & Chapanis, 1976) lend credence to this assertion. Within the modes of communication perspective and the communication competency lineage, skillful communicators are thought to be able to “read” these grammatical structures as they move from medium to medium and adjust the content and appropriateness of their message according to the context (Boerger, 2005; Daly, Vangelisti, & Daughton, 1988; Slobin, 1973).

Part of communicating successfully across multiple modes and media has to do with the communicator’s relative propensity to be communicatively adaptable (Duran & Kelly, 1985), sensitive (Daly et al., 1988), and flexible (Martin & Rubin, 1995). Discrimination, then, is seen as a key component to the efficacious implementation of an appropriate message in accordance with a particular communication situation (Craig, 2003). For example, the abbreviations, acronyms, and shortcuts of interactive written discourse should certainly be used online or in text messages but these orthographic techniques probably have little place in an essay submitted to a teacher or an important email to a superior in the workplace (Craig, 2003).

In the current study, four communication studies-based scales will be used to measure college students’ predispositions to communication competence and social cognition. Specifically, cognitive flexibility (Martin & Rubin, 1995), need for cognition (Cacioppo, Petty,
& Kao, 1984), communicative adaptability (Duran, 1983), and conversational sensitivity (Daly et al., 1988) will be implemented to understand how varying levels of discrimination while communicating relate (or do not relate) to students’ formal writing outcomes. The cognitive flexibility and communicative adaptability scales will be used to measure students’ ability to perceive what is required in a given communication situation and their related propensity to adapt behaviors to meet that specific context (Duran & Kelly, 1985). The conversational sensitivity scale is included to measure students’ abilities to formulate appropriate messages, which varies depending on individual’s orientation to the social affordances of the situation (Daly et al., 1988). Lastly, the need for cognition scale will be used to measure students’ tendencies to engage in and enjoy effortful thinking (Cacioppo et al., 1984) and perhaps to understand what makes some people cognitively able to code-switch and formulate a message in a variety of contexts.

While there is much empirical support regarding the notion that certain media require and enable particular forms of communication (out of the modes of communication literature), there is to date no known evidence to support the notion that the written discourse practices from interactive media are making their way into other writing situations (Crystal, 2008). Despite extensive research attempts that range from examination of naturally occurring IM conversations of college students, surveys with small sample sizes, focus groups, and in-depth interviews, Baron (2008) has yet to clearly establish whether SITs influence language use in other contexts. Recent research has shown that text messaging at work is related to reduced concentration and productivity (Wilson, 2005) and that children who are frequent text messagers (relative to other children) tend to score significantly lower on standardized verbal reasoning tests (Plester, Wood,
& Bell, 2008), but there is little, if any, evidence that links writing practices in SITs to writing practices in other, more formal settings.

The lack of evidence has not stopped the press from fomenting a sort of hyperbolic moral panic that links interactive written discourse to the supposed “communicative ineptitude of young people” (Thurlow, 2006, p. 671). About this panic, Thurlow notes, “it seems, adult anxieties about youth, about technology, and about language merge into a kind of ‘triple whammy’ panic about declining standards of morality and the unwinding of the social fabric” (p. 671). Of course, claims that a group of emergent media result in new and compromised forms of language and social order are not unique to the 21st century or SITs (Crystal, 2008; Goggin, 2006; Wartella & Jennings, 2000). Similar outcries have been unleashed in the past as societies moved from writing to mechanized print (Eisenstein, 1979; Innis, 1951/1991) and from print to a media system that included film, radio, and television (Mosco, 2004; Salomon, 1979, 1990). In fact, many of the same objections currently being asserted against computers were voiced by Plato against writing as Greek culture moved from an oral to a literate culture (Postman, 1992).

Perhaps society’s tendency to cast media technologies as the destroyers of language is related to the making of societal myths (Mosco, 2004). With each new wave of technology there is an accompanying declaration to the end of any number of things we might desire to hold onto (history, geography, sense of place, political structures, language, etc) (Mosco, 2004). Mosco (2004) notes, “As the telegraph and electricity demonstrate, the new world of cyberspace is not the first to be christened with magical powers to transcend the present and institute a new world order” (p. 125). History shows that with the introduction of each new wave of innovation in mass media throughout the twentieth century, debates on the effects of new technology have recurred, especially with regard to the effect on young people (Wartella & Jennings, 2000). At this point
whether the moral panic Thurlow points out is related to archetypal mythology or whether it has some seeds in reality remains to be seen. While media technology is only ever one of many factors involved in language change (Thurlow, 2006), it is not currently known to what extent socially interactive technologies are a component or indicator of recently documented language transmutations, especially in reference to college students’ formal written discourse (Baron, 2008).

Jacobs (2004) argues, “Folk theory is pointing to instant messaging as a causative factor in the supposed deterioration of adolescent writing skills, but whether there is a relationship has not yet been empirically investigated” (p. 397). The current study aims to add empirical substance to a national discussion taking place largely in the absence of verifiable data. The goal of the current research, then, is to ground the discussion in substantive research findings rather than hyperbolic speculation and to interrogate whether there is continued reason to discuss young peoples’ changing formal writing practices in relation to increasing socially interactive technology use. To that end, the current study’s central research question asks: Will the frequency and form of college students’ use of socially interactive technologies be related to the inclusion of particularly informal language in two formal written communication situations?

As a result of ubiquitous Internet access on college campuses in the United States (Crook & Barrowcliff, 2001) and because college-aged people are typically strong and early adopters of emergent media technologies, college students are currently among the largest demographic age groups utilizing IM and other socially interactive technologies (Flanagin, 2005). College students are also of interest in the current study because this subset of the population is still developing their reading and writing skills in a formal educational setting. The current research project endeavors to engender a better understanding of the relationship between college students’ socio-
digital communication practices and other linguistic trends and looks to the future when our current students become our society’s decision makers, policy writers, and skillful communicators.

Competent written communication of all types topped a recently compiled list of applied skills found lacking in college graduates (The Conference Board, 2006). The Conference Board reported that 62% of the employers they surveyed in the United States rated general proficiency with English as a “very important skill” and 49% specifically rated successful deployment of written English as a very important skill for newly employed college graduates. As college students leave their campuses and professors behind, they will form the future of the working world. For this reason, a better understanding of the relationship between newer interactive digital media use and the ever-present utility of effective written discourse might be viewed as one of the fundamental contributions communication studies can make to collegiate pedagogy.
CHAPTER I: LITERATURE REVIEW

The Written Discourse of Socially Interactive Technologies

The technological and social affordances of interactive digital technologies defy conventional analyses based on traditional notions of formal written discourse (Crystal, 2006). Through their affordances, which are fundamentally different from extant meaning-making situations (Crystal, 2006), computers and other socio-digital technologies are restructuring the potentials for written communicational action (Kress, 2003). For example, Nastri and her research team looked at 483 unique “away-messages” of 44 instant messaging users and found that 39% of the messages contained orthography specific to IWD, such as abbreviations (e.g., “BRB” for Be Right Back), emoticons, intentional misspellings (e.g., “loooooong day), and non-standard use of punctuation (e.g., ~*sleeping*~). While these types of findings may not make clear that language is changing in permanent or substantive ways, it is clear that communication practices are changing as a result of the dynamic tension between the individual and the technological object.

The literature review will examine written communication by looking at the distinctive properties of socially interactive technologies and will call upon the theory of affordances, research in the communication competence and social cognition lineages, as well as an historical examination of relationship between language change and media change to contextualize what changes in written communication might mean for college students formal written discursive practices.

About the IWD-specific language they found, Nastri et al., observe, “These findings support views of language use that argue that users adapt their language to the constraints of the communication medium and to their social objectives” (p. 1040). Specifically, the type of
language used in SITs is both speech-like and writing-like (Lanham, 2001) and involves multiple modes of expression that go beyond just words to include images, audio, hyperlinks, and other dynamic modes of communication (Walsh, 2007). That SITs blend speech and writing and are multimodal are two important macro-level affordances that help explain why written communication is changing as SITs continue to be adopted.

Socially interactive technologies blend face-to-face speech with writing to form a complex amalgam that might best be thought of as a unique third, neither writing nor speech (Baron, 2002; Crystal, 2006). That said, early research results show that IM more closely resembles speech than writing (Baron, 2008). Relying on data from in-depth interviews and focus groups with college-aged IM users, Baron (2002, 2008) suggests students tend to think of IM as a written version of casual speech. This combination creates a hybrid genre of language (Voida et al., 2002) that approximates talking through textual written discourse (Shortis, 2001).

Because SITs are a set of social and communicative media that use written language, they are bound to combine the principles and practices that define orality with those that define reading and writing (Carrington, 2005). Lee (2007) notes, “[IM’s] perceived comparability with face-to-face conversations, influenced by its real time and interactive capabilities, reinforce the need to write in the most expressive way” (p. 235). Case in point is the work of Walther and Parks (2002) who examined the way 158 people who had never met used an asynchronous interactive program to get to know each other. The researchers found that for the most part individuals attempted to compensate for constraints of the technology by “hyperpersonalizing” their exchanges as they worked to get to know each other around the technological limitations of the channel.
After examining a corpus of young people’s naturally occurring IM exchanges, Lewis and Fabos (2005) note, “To achieve a speech-like quality, IM writers use syntax, vocabulary, and usage more common in speech as well as abbreviations to make for quick speech-like exchanges and to communicate paralinguistic features of face-to-face communication contexts” (p. 495).

In speech, language is spontaneous, quickly deployed, casual, error-laden, personal, and features types of words and sentence constructions more suited for informal encounters such as obscenities, slang, lengthy/complex sentences, and contractions (Crystal, 2006).

Language in speaking situations also draws on adjustments like intonation, rhythm, tempo, and loudness, which are not typically available in written contexts (Walther, 1997). Despite the fact that SITs are communicative and social, IWD is noteworthy for reduced social and contextual cues (Ishii, 2006; Van de Merghel, 2003; Walther, 1996; Walther & Parks, 2002). To make up for a lack of nonverbal communication and other social cues, SIT users have developed numerous playful textual adjustments (most famously emoticons) to convey feelings and emotions (Van de Merghel, 2003). The result is the continued want to achieve speech-like qualities despite the limitations of QWERTY keyboards, numerical keypads, and finite monitors on computers and cell phones (Lewis & Fabos, 2005; Nastri et al., 2006). Because writing lacks the existential elements of speech, which help determine meaning largely independent of structure, written discourse requires more complicated linguistic scaffolding (Ong, 1982/2002). In more formal written contexts, attention is necessarily paid to conventional elements like grammar, spelling, capitalization, spatial organization, and punctuation (Baron, 2005; Crystal, 2006).

Adjustments to written language use follow patterns enabled by the medium and desired by the user. One such adjustment comes out of the social desire to keep instant messaging as
synchronous as possible and in real-time, like speech (Lee, 2007). This is never completely possible because the technological affordances of SITs necessitate turn taking, especially in the asynchronous realm of text messaging. Even instant messaging (which is quick to the point of being nearly synchronous) is still technically asynchronous, as users must take turns to exchange messages. A dynamic tension manifests as people type faster and create shorter short-hand representations of language to maintain the back and forth feel of face-to-face speech (Eldridge & Grinter, 2001). Instant messaging and to a lesser extent other SITs place a certain amount of social pressure on users to respond immediately (Chung & Nam, 2007); the result is quickly delivered brief message transmissions of about five words per instant message (Baron, 2002; Jacobs, 2004).

From blogging to instant messaging and texting, SITs share a set of informal non-standardized textual qualities. Baron (2002) points out that language found in text messages is similar to that found in IM, “short, full of abbreviations, and casual” (p. 15). In the other direction, several linguistic features of IM are shared with its older technological cousin, the chat room (Crystal, 2008). In both chat and IM, the language is marked by abbreviations, unconventional capitalizations, the avoidance of full stops, the absence of complete sentences, and multi-theme chunking of messages – sending part 1 then part 2 in two messages instead of one (Crystal, 2006). In general, there is a developing freedom with language in SITs (Van de Merghel, 2003). Many of the features of this distinct online dialect were noted early on in chat rooms. As shown in Table 1.1, Werry (1996) outlined ten speech-like features of chatting that have since been identified as common in other SITs (Crystal, 2006).
Table 1.1

Ten Examples of Speech-Like Language in Chat Rooms and Later in Other SITs

1. Tendency towards brevity, minimal keystrokes
2. Short turns averaging six words
3. Heavy abbreviations of words
4. Words left out (I and other pronouns)
5. Letter homophones (CyaL8r)
6. Reduplicated letters for emphasis (soooo sloooow)
7. Periods and hyphens for conversational breaks
8. Caps for emphasis (HELLO!)
9. Colloquial and phonetic spelling (fx = effects)
10. Emoticons or letter pictures (o}¨”----;~~;~ = rose).

The frequency of these types of linguistic deviations has been called into question in recent studies (Baron, 2008; Ling & Pedersen, 2005). Ling and Pedersen found that, among text messages exchanged between a random sample of Norwegian teens, only about six percent used abbreviations of any kind. Similarly, when Baron (2008) analyzed IM conversations exchanged by college students she found they did not come up as much as might be expected based on the extensive public and even scholarly attention to these issues. Abbreviations (a total of 31 of 11,718 words), acronyms (90 total), contractions (65% of a possible 763 possible contraction usages), emoticons (49 total), and spelling errors (171 total) were all quite sparse in college students’ instant messages.

In addition to blending speech and writing, SITs’ multimodal functionality acts as a second macro-level affordance that helps explain why written communication practices are changing as SITs proliferate. One central multimodal affordance of socially interactive technologies and the Internet generally is the inclusion of the visual image in conjunction with or instead of the written word (Kleinman, 2003; Kraidy, 2002; Kress, 2003, 2005; Lanham, 2001; Lewis & Fabos, 2005; Matthewman et al., 2004). Of course the coupling of words and images is
not new to the emergence of the Internet. The development of photography, video, film, television, and improved printing technologies brought on a “fierce assault on language made by forms of mechanically reproduced imagery that spread unchecked throughout American culture” (Postman, 1985, p. 74) from the late 1800s through the 1900s.

Internet technologies, especially SITs, which increasingly afford the inclusion of images (Lewis & Fabos, 2005; Walsh, 2007), further the displacement of written language that Postman posited. As this broad movement takes place across the media landscape, from writing to other modes like audio and video, it is reasonable to expect meaningful changes will take place in the form of texts and the communicative function of writing (Lanham, 2001). Just as the printed book and newspaper shaped writing in the past, multimodal, imagery-laden, digital, screen-based media will also shape the form writing takes (Kress, 2003).

Having a wide range of communication modes available in emergent technologies “can extend, enhance, counterpoint or even replace language” (Matthewman et al., 2004, p. 155). For example, Lewis and Fabos (2005) looked at naturally occurring instant messages of young people and found the technology encouraged the artful design of messages and words, including nonlinguistic visual elements such as creative use of font and text size. The visual element is so important to young people’s writing with computers that there is an active attempt to make texts not only linguistically appealing but also visually attractive (Matthewman et al., 2004).

The return to image-centeredness does not necessarily imply deleterious effects for communicative efficacy nor language learning and educational written discourse. Kraidy (2002) sees digital technologies as enablers that will return Western society to “a visual richness lost during the type-based book age” (p. 102, emphasis added). Walsh (2007), a primary school English teacher in the UK admitted his students’ ability to use visual and digital rhetorical
strategies to tell a story and construct a narrative were stronger than his own. Walsh noted that, despite being an English teacher, to keep his pedagogy relevant, he could no longer focus on language alone. Certainly, educators must continue to meet students where their abilities reside and foster learning with modes other than language. But this trend begs the question, if English reading and writing skills are to a degree supplanted and supplemented by visual and digital practices, then shouldn’t students be less comfortable and capable when working with words? If uninterrupted time spent with language decreases, then won’t decreased reading and writing skills necessarily follow? Written communication competency might also suffer as students are decreasingly asked to use language for the skilled deployment of appropriately worded messages.

Images, audio files, and other modes in SITs not only supplant or displace the time spent with written words but working with images and other modes also requires inherently different cognitive processes. In fact, a return to visual thought processes is one of the significant changes to cognition as a result of digital interactive media (Kraidy, 2002). When digital technologies are used to create texts, visual design elements tend to move to the foreground (Matthewman et al., 2004). Because visual images typically depict full and specific meanings (Kress, 2005), response to them is quick and visceral and our eyes and brains attend to them more immediately than words (Kleinman, 2003). On the other hand, response to words requires some time to elapse for the narrative to unfold and be understood. As a result “images almost always subvert the written message or threaten to do so” (Kleinman, 2003, p. 300). Similar to the way newer media displace older media formats (for example, newspapers are slowly being displaced by online news sources (Dizard, 2000)), old forms of cognition might be displaced as society moves from printed texts to multimodal ones (Carr, 2008). As older physical media like newspapers, greeting
cards, and hand-written letters are replaced by virtual equivalents, language is also losing its physical form and structure (Carr, 2008). It is important not to let extant forms of cognition and formal writing practices drift into obsoleteness in favor of emergent ones as both are important and add to the continued richness of the human mediated experience (Lanham, 2001). There is a luxury in not needing to choose between modes of meaning making; instead of choosing, new facets can be added to our intellectual repository through SITs while the beneficial and generative qualities of reading and writing in traditional ways can also be maintained (Wolf, 2007).

Concurrency and multitasking are two such new facets of SITs that have received attention from scholars interested in the cognitive and social impact of SITs (Flanagin, 2005). Concurrency refers to “a medium’s ability to support distinct communication events simultaneously” (Flanagin, 2005, p. 177). IM is the clearest example of an SIT that affords concurrency. In IM, a user can carry on an unlimited number of interactive written conversations in boundless but distinct windows as long as there are enough friends online with whom to converse. Social networking websites also afford concurrency (Lenhart & Madden, 2007). An individual can have multiple IM-like conversations with friends on Facebook while sending a private asynchronous message (more like an email) to someone not currently online, while posting a message on another user’s “Wall,” while writing a message attached to a posted photo or video. Concurrency then leads to multitasking within a given medium. Emergent media technology also allow for multitasking across media. A college student might have a web browser open, while carrying on multiple IM conversations, while crafting a message to a friend on MySpace, while receiving a text message on a cell phone, while working on homework in a textbook or notebook.
Wijekumar and his colleagues (2006) conducted a study to see how much multitasking occurs while young people work on an intellectual task. Wijekumar et al. asked teenage students in a focus group to discuss the ways they used computers at home. Most of the students noted they usually multitasked while doing homework although some reported that they post away-messages on IM and otherwise try to focus their attention on their work. When queried, the multitaskers all reported that they were able to effectively switch their attention between windows as they worked. Wijekumar’s results tell a different story. The researchers compared multitaskers’ and non-multitaskers’ recall about nutritional supplements from a series of online learning exercises. Results revealed that despite the students’ beliefs, the multitaskers’ recall showed more gaps and disjointedness in information about the supplements than the non-multitaskers’ recall.

In another study that looked at concurrency and multitasking, Grinter and Palen (2002) noted all 16 of their participants regularly used IM while surfing the web, emailing, and completing school work. The participants also reported they typically engaged in concurrent IM conversations. Similarly, Voida et al. (2002) found maintaining multiple conversations in IM was quite common among the college students they observed in a laboratory setting. Lewis and Fabos (2005) and Jacobs (2006) also separately reported that within their participant pools, multitasking and concurrency behaviors were quite common. One student reported to Lewis and Fabos (2005) he sometimes had as many as 13 or 14 IM conversations going at once but to have deeper exchanges he would reduce the number to about 5 windows.

Baron (2008) queried 158 college students about their multitasking behaviors. Baron reported that 98% of the sample multitasked while using a computer and overwhelmingly students noted they rarely if ever held a single IM conversation during which they did not also
engage in some other online or offline activity. In one 18-minute period, while studying for an exam, one of Jacobs’ (2006) participants switched between reading her history notes, sending IMs to friends, looking up information on the Internet, making telephone calls, and talking to the researcher. Jacobs argues that despite the appearance, the student’s work was not fragmented and in fact a majority of her multitasking behaviors were geared towards studying for the exam. As a result, the student was able to “triangulate information” from a multitude of sources. In effect, Jacobs argues multitasking was beneficial to the student’s performance on the exam.

The corpus of research on multitasking suggests otherwise. “Psychologists have been interested in cognitive multitasking for decades. Most studies have suggested that engaging in simultaneous activities (particularly involving unfamiliar or unpracticed tasks) decreases performance level,” notes Baron (2008, p. 38). One study looked at the way college students completed schoolwork using computers in their dorm rooms (Crook & Barrowcliff, 2001). The researchers found the students’ social activities outweighed educational activities by a ratio of four to one. Another study found that communication distractions such as a ringing telephone and incoming emails and text messages reduced the concentration, productivity, and even IQ test scores of the Hewlett Packard employees being examined (Wilson, 2005). Furthermore, other research suggests the timing of communicative interruptions like instant messages, phone calls, and text messages can be critical in determining just how intrusive the incoming message will be for the receiver (Adamczyk & Bailey, 2004). Considering the frequency with which young people multitask while using SITs, in conjunction with research that shows multitasking has clear deleterious effects on performance of a variety of cognitive and social tasks, it becomes clear multitasking is something that requires continued examination. It is important to understand what an increase in concurrency and multitasking and a simultaneous decrease in reverie and
silent sustained inquiry means for young people’s cognition, communication competency, and formal written discourse skills.

Language change, changing communication processes, changing attitudes towards language, and linguistic seepage from online to offline and formal online contexts have received some anecdotal attention and discussion in the literature, but the varied assertions have to date not been substantiated or denied by empirical research (Jacobs, 2004; Lee, 2007). Media scholars and sociolinguists do not really know, despite the speculation, whether use of SITs is related to appropriate language use in other written contexts (Baron, 2008). The current research project looks at the variance of socially interactive media use within one cohort (college students) at one point in time to see if differences in SIT use show any empirical correlation with differences in communicational and socially appropriate written discourse.

*The Relationship Between Modes of Communication and Written Discourse*

Media grammar literacy (Meyrowitz, 1998) is predicated on the belief that the type of media used in part determines the structure and meaning of the message produced by the user. The father of modern linguistics, de Saussure (1983), disagreed with this notion when he argued “whether [we] write in black or white, in incised characters or in relief, with a pen or chisel – none of that is of any importance for the meaning” (p. 118). De Saussure’s assertion is in direct opposition to the “modes of communication” perspective upon which Meyrowitz’s media grammar literacy is based.

The “modes of communication” perspective as proposed by such theorists as Eisenstein (1979), Innis (1951/1991), McLuhan (1964/2003), Ong (1982/2002), Havelock (1986), and others is closely related to the OHM (Ong, Havelock, McLuhan) thesis (Casaregola, 2003). The OHM thesis argues that when broad, long-lasting changes take place in the technologies of
representation and communication, there will also be major changes in the thought, cultural, and discursive practices found in that society (Casaregola, 2003). Most famously, McLuhan (1964/2003) argued the medium is so important “the medium is the message” (p. 19). Recently, scholars (Crystal, 2006; Kraidy, 2002; Meyrowitz, 1998; Semali, 2000; Walker, 2003) have extended the modes of communication idea to digital technologies. Shortis (2001) asserts, “Types of text change as technology changes, and they always have done” (p. 5). From this perspective, each communication technology has a set of usability functions that influence the creation, transmission, and reception of content. Empirical evidence supports this claim.

A series of studies by Chapanis and his colleagues (Chapanis, Ochsman, Parrish, & Weeks, 1972, 1977; Ochsman & Chapanis, 1974; Stoll, Hoecker, Krueger, & Chapanis, 1976) explicate a number of ways that communication differs according to the mode or medium used. Stoll et al. (1976) compared students’ performance on two different problem-solving tasks according to four different modes of communication: typewriting, handwriting, voice, and communication-rich (multiple modes of communication). The authors found that the communication mode impacted the level of verbosity used and the relative proportion of different classes of words (pronouns, prepositions, and connectives).

In the 1980s this line of research was extended by Cohen (1984) who compared how “experts” directed “novices” in completing a mundane task (the assembly of a pump) across five different modes of communication: face-to-face, telephone, keyboard (linked via intranet), audiotape, and written. Cohen found that the mode of communication did have effects on the form and function of a message in task-oriented behavior. Later, Clark and Brennan (1991) conducted experimental research that led them to argue different media afford different possibilities, thus, patterns of communication also vary across media to take advantage of those
possibilities. Boerger (2005) recently found figurative language use (use of metaphor, analogy, simile, irony, and onomatopoeia) varied according to the mode of communication (full co-presence, separated by screen, through an intercom, or email).

Theoretical and empirical research using the modes of communication model confirm that indeed the medium a person uses has an impact on the language needed to communicate. Language, then, will change due to a number of factors; most salient to the current study, however, is that a crucial antecedent to language change has been media change. As society makes the broad shift from the pages of books and newspapers to digital screens and computer monitors, languages will also shift. At this point, the substantive meaning of this shift remains unclear.

The fragmented media audience and language change. As the dominance of print and broadcast media is checked by emergent digital media, a macro-level movement away from a massive audience of media users towards many smaller audiences is taking place (Fang, 1997). This broad movement has implications for the standardization of the English language in the United States. Whereas print and broadcast media help foster a massive popular literacy (Brandt, 2001; Fellow, 2005; Havelock, 1986; Langacker, 1973), digital media appear to fragment language (Dizard, 2000; Jacobs, 2006; Lanham, 2001; McQuail, 2005; Poster, 2001). Despite the flexibility of language, the mass media has been successful in keeping language development in the United States fairly stable for more than three hundred years.

Unification of the media audience and the standardization of language began with the development of writing (Baron, 2005; Ong, 1982/2002). The act of writing something down necessitates attention to mechanics such as grammar, spelling, punctuation, and even handwriting (Baron, 2005), all of which are built on principles of standardization and
consistency. Whereas writing helped bring about the need for linguistic unification, print solidified that need or, better yet, that desire. The diffusion of print technology coincided with the general growth of reading and writing in many parts of the world (Schramm, 1960; Lerner, 1960) and along with growth came standardization. Diversity of spoken languages in pre-print Europe was extensive but was reduced as print practices assembled finite limits on languages, reduced the number of distinct languages, and curbed dissimilarity within a given language (Anderson, 1991). With the development of these newly minted print-languages came the further standardization of spelling, grammar, structure, and compositional style (Eisenstein, 1979). By mechanizing writing and turning texts into machine-made renderings, individualization, ornamentation, and embellishment were reduced (Ong, 1982/2002). In the late 1800s and early 1900s the affordances of phonograph tinfoils, the thin paper-like metal upon which sound was recorded, led to the promotion of simplified spelling, discussions about regional dialects, and scholarly concerns about correct pronunciation (Gitelman, 2006).

Beyond the technological realities of the printing press (and later the phonograph), economic antecedents of the printing business also led to a standard form of languages, especially American English (Chapman, 2005). Although the book, magazine, and pamphlet all exhibited signs of standardization for reasons of capital gain, the newspaper offers the clearest example (Chapman, 2005). As printed materials fostered a public consumer society, capital gain via expansive readership of newspapers precipitated a need to present material most likely to be understood and least likely to offend a large and diverse group of readers. This economic reality in the newspaper industry of the mid to late 1800s marks the beginning of the development of the mass audience in the United States (Chapman, 2005).
During the 1920s, concentration of ownership of newspapers took form by way of conglomerated chains often owned and operated by a single proprietor (Chapman, 2005). Mechanization of the printing process, lack of governmental control, and an interest in an expansive readership all contributed to the uniformity of the American version of printed English. The result in the United States and in Europe (for similar reasons) is the establishment of a set of relatively stable three-centuries old print-languages, which are more similar to the languages of today than iterations that came just fifty or one hundred years before them (Anderson, 1991). In short, “print-capitalism gave a new fixity to language” (Anderson, 1991, p. 44).

After the development of print, electrification helped bring about a mass society as it enabled the spread of radio, TV, film, microphones, amplifiers, loud speakers, and cheaper/easier printing processes (Carr, 2008; Gitelman, 2007). Television and radio have had similar effects on oral and spoken language to that which print had on written forms (DeFleur & Ball-Rokeach, 1989). Radio and television rely on a common language and a national accent in place of regional dialects and localized versions of English (Gray, 2003). As early as 1932, when radio broadcasting was still in its infancy, experts listed standardization of diction and punctuation and discouragement of distinct dialects among the effects wireless radio communication would have on society (Fang, 1997). Of course, this type of standardization was not only taking place in the United States; broadcasters in France took up the particularly prestigious Parisian version of French taught in schools and used for formal occasions (Langacker, 1973).

The overarching effect of the burgeoning mass media on language was the formulation of a “mass literacy” (Brandt, 2001; Chapman, 2005) or a “popular literacy” (Havelock, 1986). The nineteenth and twentieth centuries, then, are noteworthy for great changes in modern forms of
authorship, expansive growth of print and broadcast technology, and other related forms of
industrial growth (Anderson, 1991). In addition, the growth of free, public, and compulsory
education (Chapman, 2005; Innis, 1951/1991; Schramm, 1960), political and economic
movements towards democracy and capitalism (Anderson, 1991; Schramm, 1960), and the
deregulation of the media by the United States government (Rowland, 2003) helped foster a
particularly stable form of English. The end result of this combination of antecedents is

Before the emergence of the personal computer in the 1980s and mobile digital media in
the 1990s and 2000s, the typewriter and the fax machine began the process of reducing the mass
media’s stronghold on a homogeneous formal writing (Poster, 2001, p. 78). Besides acting as a
necessary stepping stone to the QWERTY keyboard, the typewriter offered anyone able to
purchase the technology the ability to create texts with the authoritative look of a mass printed
document. At the end of the nineteenth century the typewriter began to exhibit an impact on
writing styles. Specifically, typewriters, “fueled invention of the business memorandum,
contributed to the decline of American handwriting skills, and encouraged the production of
more lengthy typewritten prose” (Baron, 2002, p. 7).

After the typewriter diffused into society in the United States and gave a large number of
people the ability to create a document that approximated the look of a printed one, the fax
machine allowed people to send that document to anyone with a phone line and fax machine of
his or her own (Levinson, 2001). The fax machine was an important technological building block
that afforded the common person the ability to disperse written ideas and documents (regardless
of the written form those ideas took) to a number of receivers. In the early years of its existence
(the mid-1950s) the fax machine was the impetus for McLuhan’s (1964/2003) now seemingly
prescient statement that, “Everyman will be his own publisher” (p. 68). Indeed, after forty or more years, Levinson and others (see Bolton, 2006; Brun, 2005; Dizard, 2000; Levy, 1997) believe the Internet may fully realize McLuhan’s claim.

In the mid-1960s the American Department of Defense Research Agency (ARPA), an organization typically dependent on centralized control, developed ARPANET, the technological precursor to the Internet (Gitelman, 2006). ARPANET and its eventual descendent, the World Wide Web, as developed by Tim Berners-Lee in 1990, were founded on the notion of decentralization (Carr, 2008). One of the ways digital technology challenges the dominance of mass literacy is through the creation of decentralized online spaces that encourage multiple voices to contribute to national and international discussions (Brun, 2005).

Internet modalities, such as socially interactive technologies, take advantage of the Internet’s decentralization and challenge the stability of language that broadcast and print media encouraged. Regarding personalized blogs Crystal (2006) argues, “here we have examples of a style of writing which has never been seen in a public, printed form . . . innocent spontaneity and unpredictable thematic direction . . . it falls uneasily between standard and non-standard English” (p. 244). Online language, especially the language of SITs, is created by a wider variety of individual writers and freedom from authoritative guidelines, both of which open online language to typographical idiosyncrasy (Crystal, 2006; Van de Merghel, 2003). For a variety of social, technological, and linguistic reasons, language on the Internet appears to be less formal and less standardized than print-based equivalents (Baron, 2005).

One reason Internet language is less rigid and standardized than print and broadcast versions has to do with the social nature of the discourse found there (Carrington, 2005). As a result being social, Internet texts can become self-absorbed and individualized as first person
tones materialize in much the same way they do in speech (Carrington, 2005). In this sense, users are able to avoid complicated and lengthy informational and mass-distributed texts published in standard English by sticking to shorter, personalized SIT texts. The result is a multitude of polarized and homogenized individuals who fracture what was once thought of as the massive audience or national discussion (Carr, 2008).

Image-oriented language, multiple and increasing voices, and the informal, social, and multimodal nature of digital texts all signal a movement away from the stability of language during the print and broadcast dominance of the past. Online writing “drives a coach and horses through everything we would be told in the grammatical tradition of the past 250 years about how we should write” (Crystal, 2006, p. 245). Traditionalists and educators are comfortable with the way the English language is now, that is, a rule-governed system based on hundreds of years of print’s influence (Chomsky, 1965; Selfe & Hawisher, 2004). This notion helps explain the discomfort Thurlow (2006) found in hundreds of news articles about changes in written communication competence linked (although not empirically) to the rising popularity of socially interactive technologies. While some might be excited about the circumvention of top-down language standards, it is perhaps understandable why others would feel discomfort when newer media challenge a stable version of written English that has such strong ties to educational forms of writing (Kraidy, 2002). The current research project is not meant to evoke alarm, rather, it is built on the assumption that change in language due to changes in media (among other factors) is something that requires further study from media scholars.

The relationship between language and cognition. Languages are phenomena in flux and the rate of change can vary due to a number of factors including the availability of various forms of media like socially interactive technologies. There is some speculation this change in language
also indicates an underlying change in cognition (Carr, 2008; Deekle, 1995; Eveland &
language, and the intelligibility of written texts (Baron, 2008). If language merely changes along
with SITs, most communication scholars would not find this surprising or troubling. But perhaps
surface changes in written language practices point to more meaningful permutations below the
surface (Kraidy, 2002).

Indeed, each class of writing system that has developed over thousands of years has
required various adaptations of the human mind (Wolf, 2007). Through the use of brain imaging
technology, neurologists have found the human mind is differentially organized according to the
writing system used (Wolf, 2007). For example, Chinese, which is a logosyllabic writing system,
uses portions of the right side of the brain whereas alphabetic English does not. Instead, English
writers use an additional portion of the left brain (the Temporal-Parietal Region) not used by
Chinese writers. One empirical study showed that within the same country (Portugal) but
different cultural groups, one literate and the other nonliterate, people actually use different parts
of their brain to handle language tasks dependent on their reading and writing. It is not hard to
imagine, then, that as writing systems change along with digital technologies the neurological
and cognitive processes of the human users will inevitably follow.

Computers and other digital technologies alter people’s patterns of cognition (Wolf,
2007), impact their ability to store and analyze voluminous amounts of data and information
(Kraidy, 2002), and bring about new ways of thinking of the self and other abstractions
(Klienman, 2003). For this reason, it is important, both in a theoretical and a practical sense, that
media researchers continue to work to understand how socially interactive technologies affect
users’ minds (Salomon, 1990). This knowledge could then be used to guide future design of
computers and other interactive media that cultivate rather than damage desirable thought processes. Furthermore, this knowledge could benefit media literacy scholars as they work to make students and the public aware of common processes and effects (cognitive or otherwise) associated with popular and social media objects.

Changes in the ways information and communication messages are presented (interactive, mediated, non-linear, visual, multimodal) are also bringing about changes in the way people process information as they have been theorized to do in the past (see McLuhan, 1962; Postman, 1985). Specifically, interactive and visually based electronic media contribute to a “passive mindset and foster expectations of instant gratification upon minimal effort” (Kraidy, 2002, p. 101). Because computers (via the programs and programmers who came before them) do much of the cognitive and symbolic processing such as storing, retrieving, and responding to information for the human user; they supplant the need for certain forms of cognition (Autor, Levy & Murnane, 2003) such as memory and problem solving (Salomon, 1990).

The cognitive affordances of SITs and other Internet applications stress speed, disposability, immediacy, and simultaneity and therefore provide little incentive for the human user to slow down, think deeply, and form lasting schemas in their memory (Carr, 2008; Liu, 2005). The speed and spontaneity with which humans communicate and process information in digital contexts means “the process of reflection normally used with written language will not take place” (Crystal, 2006, p. 116). Because so much information is produced and consumed instantaneously, there appears to be a reduced need for the constructive component of reading as well as less time and motivation to process information through the likes of inference, analysis, and critical thinking typical of immersion in a wholly language-based text (Wolf, 2007).
At the same time, it could be argued that any form of reading and writing is good for young people (Braun, 2007; Crystal, 2008). Specifically, writing with SITs has been shown to develop children’s phonetic awareness and linguistic creativity (Plester et al., 2009). However, in an earlier study, Plester, Wood, and Bell (2008) found children who used their cell phones to send three or more text messages a day had significantly lower scores on standardized verbal and non-verbal reasoning tests than children who sent none. It is possible, though, that hypertextuality, multitasking, and other Internet affordances can sharpen cognition by adding dynamism to thinking (Walsh, 2007) and by tapping into multiple dimensions of cognitive processing as users shift brain functioning across numerous modalities (Braun, 2007; Shortis, 2001). Plester and her colleagues (2008) found children who used more abbreviations while texting also tended to perform better on a standardized verbal reasoning test.

The current study explores whether changes in media and socio-digital communicational practices also point to changes in the ways people think about, process, and exchange written information. This is carried out through the inclusion of four established scales used to measure communication and cognitive processing (discussed below). The relationship between language usage and cognitive processing must be approached with care and circumspection (Langacker, 1973). Change in language does not inherently indicate cognitive degeneration and in fact, it usually does not (Langacker, 1973). A sticking point is the ability to separate changes in cognition and changes in language from language decline.

Because so many of our thoughts take a linguistic form (Langacker, 1973), language is of central import to understanding the cognitive implications of our communicative behaviors. It is perhaps too brazen to suggest human cognition is formed by language (Slobin, 1979); after all thoughts do not always take a linguistic form (such as when listening to music). But it is perhaps
less controversial to argue that human cognition is influenced by language and language by
cognition (Slobin, 1979; Wolf, 2007). Indeed, the psychological elements of language likely play
a predominant role in thinking (Dale, 1973); what form that role takes is far less clear.

Taking a communication studies perspective of language could provide some clarity. If
language can be viewed as an internal tool of thought and as an external tool of relating
interpersonally with others, then it can be viewed as the most basic and important medium that
connects the individual to the social world outside themselves (Slobin, 1979; Schramm, 1960). In
that sense, the tool people use to communicate with others is the same tool used to make
meaning intrapersonally within one’s own mind (DeFleur & Ball-Rokeach, 1989; Vygotsky,
1978). An understanding of others and the world around us, then, depends on a grasp of the
language used because it is the conduit that is called upon to make the connections from deep
within the black box of the mind to the colorful world that surrounds it.

From a social interactionist perspective, it can be argued that to understand how people
think it is useful to start by looking at how people interact socially (Mead, 1934/1967). Writing
about the relationship between thought and social interaction Mead asserted, “We must regard
mind, then, as arising and developing within the social process, within the empirical matrix of
social interaction” (Mead, 1934/1967, p. 133). In this sense cognition, in part, relies on
intelligibility and the ability to make connections (both social and intellectual) with others
(Whorf, 1956/1989). To make connections, linguistic systems need to remain similar enough to
allow people to continue to understand those around them. Therefore, the freedom to innovate
and create wide-reaching linguistic diversity must be checked by the need to maintain common
understanding (Langacker, 1973). For successful discourse to take place, it is important for
symbols, words, gestures, and phrases to share a common set of meanings for all members of a
social group (Mead, 1934/1967). Even interrelated and overlapping social groups that share a common language but not other aspects of life need to maintain some linguistic similitude because language is the connective tissue that allows meaningful communication to take place.

Perhaps the apparent decline in literate language use is actually a deficit in communication skills as individuals increasingly move from medium to medium. What is conventional and appropriate in one communication situation might be inappropriate in another (Boerger, 2005). One of the difficulties in having so many different communication contexts available in current online environments is the increased need to code-switch according to each situation. This need places a stronger onus on the communicative function of English, which is largely about maintaining coherence and congruity as people work in and live across different modes of meaning making (Matthewman et al., 2004). Some of the concerns regarding the impact digital technologies have on formal written discourse can perhaps be reduced to a communication skills issue rather than reading and writing literacy issues. In this sense, what is seen as a decline in literacy by some (Craig, 2003; Thurlow, 2006) might more accurately be viewed as an issue of communication competence (in terms of flexibility, sensitivity, discrimination). As socially interactive technologies afford unique forms of discourse that reside somewhere between speech and writing (Lanham, 2003), scholarly attention to cross-media and cross-modal language use would benefit from increased consideration in communication studies from a competency perspective.

Communication Competence and Social Cognition

Four socio-psychological predispositions have been selected for use in the current research to examine college students’ individualized social and cognitive abilities to communicate competently in numerous mediated situations. Each of the following four predispositions has
been selected based on several characteristics. First, each predisposition is used to measure elements of student subjects’ level of metalinguistic understanding. Second, these predispositions are theoretically salient in a study about college students’ socially interactive technology use within a theory of affordances framework. Third, each is considered a psychological dimension (trait) that can be measured along a continuum, which allows all respondents to fit somewhere on each scale (i.e. the study will not focus only on individuals who rate “high” or “low” on a psychological dimension).

These predispositions will be implemented to understand the ways individual differences in cognitive flexibility, conversational sensitivity, communicative adaptability, and need for cognition might co-determine how media use practices impact an individual’s writing skills and practices in formal contexts. From this process, an understanding of the ways varying levels of communication competence impact one’s ability to respond and adapt to the differing social and technological affordances and constraints of computer-mediated communication situations should be generated (Duran, 1983; Lazaruk, 2007). Finally, on some level, all four predispositions deal with issues of cognition and the ways internal cognitive processes influence social outcomes.

Conversational sensitivity. Research in communication studies shows that the ability to formulate a socially appropriate message varies depending on an individual’s conversational sensitivity and their orientation to the different social affordances in a situation (Daly, Vangelisti, & Daughton, 1988; Dworkin & Goldfinger, 1985). Perhaps conversational sensitivity is an important individual difference that can help explain why some people do not successfully adjust their communicational literary style in accordance with a situation while others do.
Because of the interrelatedness of thought and language, both Daly et al. and Dworkin and Goldfinger suggest that underlying cognitive differences can manifest in differing levels of skilled communication. Dworkin and Goldfinger (1985) argue that individual differences in terms of attention to social affordances manifest via internal processing biases. These processing biases predispose some individuals to be better equipped to perceive and anticipate what an appropriate message will be for a given communication situation. According to the conversational sensitivity literature, the appropriateness of a communication message depends on the deployment of the written and spoken language that best fits the unique social and technological affordances of that situation (Daly et al., 1988).

The current studies will utilize the conversational sensitivity scale (CSS) developed by Daly and his cohort (1988) to examine whether individual differences in sensitivity to what happens during (written) conversations impacts the deployment of effective socio-digital messages. Specifically, the CSS is used here to better understand the potential for individual differences to factor into the negotiation of the discrete grammars required for a variety of speaking and writing situations (Meyrowitz, 1998). Dworkin et al. (1985) clarify the relationship between meta-communication skills and the affordances concept when they note, “there are differences among individuals in the degree to which they orient to the different affordances in a situation and that the degree to which individuals orient toward a given affordance varies over a wide range” (p. 483). Based on this clarification of affordances, predispositions to various social affordances appear central to competent communication in SITs and other interactive media contexts.

Past research shows conversational sensitivity is related to people-oriented listening styles, wherein individuals who display this listening style “tend to listen with a concern or
awareness for others’ feelings and emotions” (Chesebro, 1999, p. 234). Conversational sensitivity has also been associated with “communicating for pleasure, affection, and relaxation,” as well as a strong need for intimacy (Hosman, 1991, p. 78), and cognitive flexibility (Chesebro & Martin, 2003). Together, these results show conversational sensitivity is useful for measuring a person’s sensitivity to situational social affordances and that cognitive and emotional predispositions can influence message outcomes and responses to others’ messages.

Daly and his colleagues (1988) developed the Conversational Sensitivity Scale (CSS) under the broader theoretical umbrella of Gibson’s (1979) theory of affordances. The scale was developed to measure people’s varying propensity to perceive and interpret what occurs during a conversation. The 36-item self-report instrument measures an individual’s conversational sensitivity using a 5-point Likert-type scale with 7 related factors (Daly et al., 1988). A few years later, however, Stacks and Murphy (1993) tested the scale’s factor structure using principle components factor analysis and found eight factors. The factorial sub-scales provide an opportunity to use only salient portions of this relatively long measure in the current research (Chesebro, 1999; Hosman, 1991). Therefore, questions pertaining to conversational tact, skilled conversational word play, and the ability to determine power arrangements will be the only portions of the scale used in the current college student sample. Previous research has found the CSS to display strong independent validity (Stacks & Murphy, 1993), sound convergent validity (Daly et al., 1988), and some potential for the construct’s predictive validity (Daly et al., 1988). The CSS has also proven a statistically reliable measure of people’s varying levels of conversational sensitivity (Chesebro, 1999; Daly et al., 1988; Hosman, 1991; Stacks & Murphy, 1993).
Communicative adaptability. While conversational sensitivity is couched within the theory of affordances, communicative adaptability comes directly out of the communication competence literature (Duran, 1983). Communicative adaptability is defined as “the ability to perceive socio-interpersonal relationships and adapt one’s interaction goals and behaviors accordingly” (Duran, 1983, p. 320). Cross-contextual competence is critical to communicative adaptability (Duran & Kelly, 1985). The emergence of numerous multimodal digital and computerized technologies necessitates that communicators perceive the divergent social and technological constraints and affordances of a particular communication context and adapt message strategies accordingly.

While there is disagreement about the nature of communication competence generally, there is considerable agreement that there is a cognitive component to it (Duran & Kelly, 1985). Communicative adaptability is a construct that focuses on the cognitive and perceptual aspects of communicating (Martin & Anderson, 1998). Adaptability is the most frequently cited dimension of the communication competence concept (Spitzberg & Cupach, 1989) and has a clear relationship to cognition. High levels of communication adaptability have been associated with high levels of cognitive complexity (Duran & Kelly, 1985) and cognitive flexibility (Hullman, 2007). The essential components of adaptability are the possession of a diversified behavioral repertoire and the ability to adjust one’s behaviors and goals to the physical, social, and relational elements of the communication context (Duran, 1992; Spitzberg & Cupach, 1989). Perhaps under this rubric, attention to apparent diminished formal written discourse skills among college students can be viewed as a communication skills issue rather than, or at least in addition to, an English language literacy issue as it is cast in the media (Thurlow, 2006).
The 30-item self-report instrument measures an individual’s cognitive and behavioral communicative adaptability using a 5-point Likert-type scale (Rubin, 1994). One advantage of this scale is that its factor-structure provides six clear subscales (Duran, 1992; Spitzberg, 1988), which allow for the examination of a number of distinct elements of social adaptability. Of the six factors (social composure, social experience, social confirmation, appropriate disclosure, articulation, and wit), two emerge as the most salient in the current study: appropriate disclosure and articulation. Appropriate disclosure measures the communicator’s ability to “self-disclose within the constraints of the social context as indicated by the other” (Duran, 1992, p. 256). Articulation measures an individual’s ability to clearly express his or her ideas, with particular attention to an individual’s word choice, pronunciation, and grammatical structure within a message (Duran, 1992). Previous research has found the CAS to be internally reliable (Duran, 1992) and to have strong concurrent validity (Rubin, 1994), criterion-related validity (Duran, 1992) and construct validity on two of the six dimensions (Duran & Kelly, 1985).

Cognitive flexibility. Like communicative adaptability, cognitive flexibility is part of the broader notion of communication competence (Martin & Rubin, 1995). Both constructs focus on flexibility in social situations, which is considered an integral part of the communication competence complex (Martin & Anderson, 1998; Martin & Rubin, 1995). The ability to be cognitively flexible must precede the behavioral manifestation of adaptation. In this sense, cognitive flexibility and communicative adaptability are closely related (Hullman, 2007).

Through a process of social cognition people become aware of choices and alternatives within a given social situation to which they may or may not adapt (Martin & Rubin, 1995). Cognitive flexibility, then, can be seen as a measure of metalinguistic understanding in that flexibility is an important element of metalinguistic awareness (Bialystok, 2001). Specifically,
the more cognitively flexible a person is, the more likely they will acknowledge possible adaptations based on the communication situation, the more likely they will be willing to adapt their behavior to that context, and the more likely they will possess the self-efficaciousness needed to enact the befitting behavior (Martin & Rubin, 1995).

Survey research has shown that cognitive flexibility is positively related to conversational sensitivity (Chesebro & Martin, 2003), cognitive flexibility, and out-of-class communication (Martin & Myers, 2006). Martin and Myers (2006) define out-of-class communication as, “visits during office hours, contact with the instructor via e-mail or the telephone, conversations before or after class, and informal meetings on campus” (p. 283). This fits well within the current study’s goal to examine the more formal written discourse skills displayed in students’ emails to professors. It is possible that cognitive flexibility is an important determinant of the language students use to communicate in a variety of mediated situations.

Martin and Rubin (1995) developed the Cognitive Flexibility Scale (CFS) to measure a person’s awareness of communication alternatives, willingness to adapt to the situation, and self-efficacy in being flexible. The 12-item self-report instrument measures an individual’s cognitive flexibility using a 6-point Likert-type scale (Martin & Rubin, 1995). One advantage of this scale is its parsimonious measurement of flexibility with only 12 items that remain broad enough to be applicable in a range of communication contexts. Previous research has found the CFS to show acceptable internal reliability and strong construct and concurrent validity (Hullman, 2007; Martin & Anderson, 1998; Martin & Rubin, 1995).

**Need for cognition.** Like cognitive flexibility, need for cognition (NFC) has been conceptualized as a relatively stable intrinsic predisposition that generally refers to the ways individual differences in cognitive processes relate to social processes (Cacioppo, Petty & Kao,
1984; Cacioppo, Petty, Feinstein, & Jarvis, 1996). Cacioppo, Petty, and Kao (1984) define need for cognition as, “an individual’s tendency to engage in and enjoy effortful cognitive endeavors” (p. 306). A goal of the current study is to better understand how interactive written discourse relates to internal cognitive processes. Cognitive psychology, a branch of social psychology, examines the relationship between cognition and social interaction (Fiske & Taylor, 2007). One area of interest in cognitive psychology is research related to social cognition. Social cognition is an area of study used to examine how people make sense of others and themselves and how they think about living in a social world (Fiske & Taylor, 2007). Cacioppo and Petty (1982, 1985) developed the notion of need for cognition within the sub-field of social cognition.

Need for cognition can be thought of as one’s attitude toward and level of motivation regarding thinking rather than one’s ability to think or one’s success in intellectual endeavors (Cacioppo et al., 1996; Henning & Vorderer, 2001). That said, high need for cognition has been empirically related to performance on verbal intelligence tests, standardized tests (Cacioppo & Petty, 1982), high school grade point averages, a variety of cognitive tasks (such as doing arithmetic problems, solving anagrams, and performing in college courses), and the ability to acquire knowledge on a variety of topics (i.e., political information and knowledge of trivia) (Cacioppo et al., 1996; Sadowski & Gulgoz, 1996).

Individuals high in need for cognition are thought to possess a strong intrinsic motivation to “exercise their mental faculties” (Cacioppo et al., 1996, p. 197), while individuals low in need for cognition tend to possess “low intrinsic motivation to engage in effortful cognitive endeavors” (Cacioppo et al., 1996, p. 197). Individuals high in need for cognition are also more likely to use technologies that require effortful thinking and reasoning, to have positive attitudes
towards tasks that require problem solving skills, and to select behaviors and activities that require effortful thinking (Cacioppo et al., 1996).

Cohen’s (1957) research on need for cognition, which was the basis for Cacioppo and Petty’s work (1982), showed that participants with a higher need for cognition were also motivated to think about communication issues and messages more so than those low in need for cognition. When attending to a message, those high in need for cognition are more content-centered compared to those low in need for cognition who get caught up attending to contextual elements to glean information and understanding (Sadowski & Gulgoz, 1996; Sicilia, Ruiz & Munuera, 2005). It is possible that need for cognition is an important variable to understand what makes an individual able to code-switch and formulate/deconstruct a message in a variety of contexts. Perhaps the message-centeredness of those high in need for cognition will mean they are able to handle a diverse set of contexts because they understand the world through a focus on the informational qualities of situations rather than contextual factors.

Henning and Vorderer (2001) argue that differences in need for cognition can be used to explain differences in frequency of certain types of media use. Indeed, Henning and Vorderer found that subjects higher in need for cognition reported significantly lower television viewing rates than those low in need for cognition. The authors speculate this difference might be due to a preference for escapism on the part of those low in need for cognition. An alternative interpretation might be that television viewing is a passive and peripheral cognitive activity wherein entertainment (rather than learning and thinking) takes center stage (Postman, 1985; Wijekumar et al., 2006). Thus, individuals high in need for cognition are likely to be less interested in media formats that do not require central processing.
There are a number of applications for the need for cognition (NFC) construct in the current study. Most generally, the NFC scale is useful as it allows for the examination of cognitive processes and communication skills together. Furthermore, it will be useful to understand what level of need for cognition is associated with use of socially interactive technologies in comparison to other media. This will take the investigation beyond an analysis of the ways digital practices impact formal written discourse towards an understanding of what kind of minded person uses SITs. This analysis will not only engender understanding of the student users but also the nature of each interactive medium itself.

The NFC scale is also useful in the current study to understand how cognition relates to socially interactive media use as well as formal writing skills (Study II). The inclusion of need for cognition will further our understanding of the cognitive processing associated with some of the basic features of digital technology such as interactivity, multitasking, and visual, aural, and multimodal elements. Past research shows individual differences in need for cognition are associated with differences in preference for interactivity (Sicilia et al., 2005), preference for visual and verbal complexity of websites (Martin, Sherrard, & Wentzel, 2005), as well as visual complexity, lexical complexity, and information-richness of advertisements (Luna & Peracchio, 2002). Identifying a student’s level of need for cognition should engender deeper understanding of how media use preferences and varying levels of cognitive processing together influence writing outcomes.

The original need for cognition scale (NFCS) was a self-report measure that contained 34 items (Cacioppo & Petty, 1982); that number was reduced to 18 items to allow for a more efficient assessment of the construct (Cacioppo et al., 1984). The shorter scale measures an individual’s need for cognition using a 5-point Likert-type scale. The scale matches respondents’
attitudes towards effortful thinking by asking them to respond to statements about a variety of
cognitive tasks and report whether that statement is characteristic or uncharacteristic of their
attitudes towards cognition. Previous research has consistently found the NFCS to be internally
reliable (Cacioppo et al., 1996) and to typically display a valid and reliable one-factor structure.
Finally, Cacioppo and his colleagues (1996) report the NFCS has shown good convergent and
discriminant validity.

Theory of Affordances

The theory of affordances (TOA), also called affordance theory (Lintern, 2000;
Stoffregen, 2000), provides the theoretical framework for this research project. TOA and its main
conceptual term, affordances, were developed by James J. Gibson (1966, 1977, 1979/1986,
1982) as he worked to understand how people perceive and interact with the world around them,
including the objects, both natural and technological, found in that world (Reed & Jones, 1982).
TOA was developed in the context of visual perception studies within the field of social
psychology, was instrumental in the development of ecological psychology (Valenti & Good,
1991), and remains a vastly popular theory in psychology today (in 2003, Michaels reported that
PsychINFO yielded 310 articles in which affordance or affordances appeared in the abstract).

Gibson (1966) developed the term “affordance” based on the verb “to afford” because, “it
refers to both the environment and the animal in a way that no existing term does. It implies the
complementarity of the animal and the environment” (Gibson, 1979/1986, p. 127). This
ecological attention to the complementarity of humans and their environment means the
affordances of an object are based on a combination of the physical properties of the object in
reference to the social situation of the human user, which together delimit how that thing will be
used and what it will mean (Gibson, 1977). An affordance of any object is a complex, yet
specific combination of the properties of that object, including its surface traits (shape of the computer screen, QWERTY keyboard) and internal substance (software, programs) taken in reference to the human user (internal individual differences, communicative intentions, social surroundings, culture, experience with the technology). Affordances are not simply physical properties of objects in isolation but rather are the properties of a thing as defined and measured in relation to an intentional act by a human user (Gibson, 1977; Stoffregen, 2000). Properties of the environment and behavioral intentions, then, co-determine how that thing might be used (Norman, 1988).

TOA has also been implemented with some success in the science of human computer interaction (HCI) (Hartson, 2003). HCI is a social scientific approach to computer science that focuses on the design phase of technology, specifically interactive communication technologies with particular attention to the interaction that occurs between the human user and the computer’s interface. Work in HCI (see Anderson, Sanford, Thomson, & Ion, 2007; Gall & Breeze, 2005; Kreijns, Kirschner, & Jochems, 2002; Kreijns, Kirschner, Jochems, & Van Buuren, 2004, 2007; Lintern, 2000) as well as in graphical and industrial design (Norman, 1999) is strongly influenced by Donald Norman’s (1988, 1990) reworking of Gibson’s affordances.

In addition to HCI and psychology, TOA has also been implemented in sociology and sociolinguistics, particularly in investigations that examine language usage and interaction enabled or enhanced by socially interactive technologies (see Arminen & Leinonen, 2006 Hutchby, 2001, 2003; Hutchby & Barnett, 2005; Kress, 2003; Lai, Yang, Chen, Ho, & Chan, 2007; Lee, 2007). These studies typically use conversation analysis (Arminen & Leinonen, 2006 Hutchby, 2001, 2003; Hutchby & Barnett, 2005) qualitative analysis, grounded theory (Lee, 2007), and experimental design (Lai et al., 2007) to examine the ways cell phones and computers
afford particular text making and communication practices. Only Lee’s study (2007) effectively captures and builds on the complexity of TOA. Specifically, Lee examines affordances as dependent not only on the emergent technology and its physical properties but also on the social and cognitive affordances of the users. The other cited studies essentialize TOA as a media effects theory and argue that these emergent technologies drive changes in communication; these studies do little to consider social, cultural, and psychological factors.

Application of TOA in communication studies is less extensive, relative to other social technology fields, but it is not without precedent. Two studies use social affordances to better understand why individuals differ in conversational sensitivity in face-to-face discussions (Daly et al., 1988; Stacks & Murphy, 1993) and another uses TOA to create a taxonomy of the technological affordances of informational blogging (Graves, 2007). While direct application of TOA in communication research is somewhat rare, it has been used to focus on interpersonal communication issues in other fields and has a number of ties to media research conducted under the purview of communication studies. Gibson (1977) noted the term affordance is reminiscent of the Kurt Lewin’s term “Aufforderungscharakter,” which loosely means “the characters of objects that invited or demanded behavior” (p. 82). In addition to a tangential relationship to Lewin, one of the founding fathers of communication research (Rogers, 1997), TOA also has some similarities to McLuhan’s (1962; 1964/2003) medium theory and Innis’ (1951/1991) biases of media objects.

McLuhan’s (1964/2003) medium theory is based on his now pre-eminent idea that “the medium is the message” (p. 19). This idea is clearly provocative but it does not inculcate the necessary level of complexity about social tool use that Innis and Gibson were able to foster. The main similarity between McLuhan and Gibson is their shared attention to the importance of
objects in everyday life but McLuhan all but ignored the human influences that affect how a medium is used and what it will mean (Heyer & Crowley, 1991).

Although Innis (1951/1991) did not use the term “affordance,” preferring terms like “potentialities” (p. xvi), “characteristics” (pp. 33, 64) and “biases” (p. 60), he was interested in the ways the structure of media objects influence particular forms of content produced with that medium. For example, Innis asserted, “A medium of communication has an important influence on the dissemination of knowledge over space and over time and it becomes necessary to study its characteristics in order to appraise its influence in its cultural setting” (p. 33). Put simply, the physical make-up of a medium directs message consumption and production with that medium (Kraidy, 2002). This focus on the ways physical properties of the media object in part determine its social uses is in-line with Gibson’s design of TOA as an ecological theory useful for examination of the complementarity of humans and their environments.

Norman’s (1988, 1990) version of TOA is perhaps more useful to the social researcher than Gibson’s because it focuses on the users’ individualized perceptions of a technological object (Lee, 2007). Norman (1988) argued that affordances result not from direct perception of an object, as Gibson asserted, but mental interpretation of objects drawn from past knowledge and socio-cultural experiences. Gibson (1977), however, believed an individual could directly perceive the affordances of an object as “invariant combinations of the properties of things” (Gibson, 1982, p. 410). Gibson adopted this rigid approach because he was so intent on questioning the supposed unreliability of visual perception as a conduit to reality that he nearly claimed it was self-sufficient (Costall, 1995). Norman (1988) found direct perception untenable and argued for “perceived affordances,” which makes more conceptual sense for social research
because humans do not act purely on the physical qualities of things but rather what those things come to mean in a given social situation (Krippendorff, 1995).

Beyond Gibson and Norman’s initial versions of the theory of affordances there are many adaptations available for implementation by the interested social researcher. In fact, the definition, meaning, limits, and ontology of the term affordances is a topic of continued debate (see Chemero, 2003; Bingham, 2000; E. J. Gibson, 2000; Jones, 2003; Michaels, 2003; Norman, 1999; Stoffregen 2000, 2004). One concern, however, is that the term “affordance” might be so irresolute and unclear that it is devoid of value (McGrenere & Ho, 2000).

Two salient issues in the current research project have been widely debated in the literature. First, the breadth of the affordance concept has been called into question. Specifically, researchers have asked whether affordances should include constraints, conventions, and effectivities. Second, ecological psychologists have debated whether affordances exist without animals and humans to observe them and bring them into action, or whether affordance is an ideal concept, not observable and tangible but rather completely socially constructed. In essence, researchers have pondered where the meaning of an affordance resides. Are affordances properties of the environment, animal, or both? This question speaks to whether one believes meaning is nested in the object, in the mind of the human users, or somewhere in between.

The breadth of the affordance concept tends to vary depending on the author’s interpretations of Gibson’s sometimes roughhewn ideas. Wells (2002) notes, “Like many other profound ideas, the concept of affordance is intuitively simple, but its richness makes it hard to pin down precisely” (p. 141). As a result, there has been much to work out by later ecological psychologists regarding what can be examined under TOA, including constraints, conventions, and effectivities.
Constraints can be thought of as a sort of inverse of affordances. Whereas, “affordances suggest the range of possibilities, constraints limit the number of alternatives” (Norman, 1988, p. 82). Conventions are related to both affordances and constraints and refer to social norms that help determine how a tool or object will be used in a given situation (Norman, 1999). Despite the fact that Norman (1988, 1990) includes extensive discussions of constraints and conventions in his writings about TOA, it remains unclear whether these terms can or should be included in research using the theory (Norman, 1999). This and other ambiguities have left interpreters of Gibson’s and ultimately Norman’s work somewhat puzzled (Wells, 2002; Hartson, 2003). Certainly, a theory is less useful if it can only address behaviors a technology enables and not those it denies. The current project requires a theory that can discuss behaviors that are enabled and also denied to the social actor. Therefore, constraints will be included here. It is also important to consider socially formed usage patterns of SITs. For this reason, conventions (via social affordances) will be included in the current research as well.

The final point in need of clarification for the current project regarding the breadth of TOA deals with effectivities. While affordances are properties of an object that enable a human user to enact a certain behavior, effectivities are the properties or make-up of the human user that allow that behavior to be enacted in a given situation (Michaels, 2003). The current application of the theory of affordances will seek to include the value of the term effectivities (i.e., attention to individual differences) but will do so by calling upon the more all-encompassing configuration (Wells, 2002).

To keep the theory parsimonious, Wells’ (2002) concept of configurations will be the unit of analysis, in part, because it renders effectivities unnecessary. Wells’ configurations honor Gibson’s initial goals for TOA as an ecological theory focused on the nexus between the animal
(in this case human media user) and the environment (in this case the media objects found there). By including the properties and make-up of the human user as part of the affordance concept through use of the term configuration, Wells reduces the need for the additional complexity that effectivities bring to TOA.

The second salient and oft-debated issue in the theory of affordances literature relates to the reality of affordances. Ecological psychologists have spent considerable time and space debating whether affordances are real and observable or ideal and socially constructed (Gibson, 2000). The simple answer and one the current assemblage of TOA will try to capture is that affordances are both real and ideal and both observable (i.e., tangible and physical) and constructed (i.e., socially and culturally) (Jones, 2003). Gibson (1977) put it simply but perhaps left much to be determined when he stated, “an important fact about affordances, [is] namely that they are real” (p. 69). Critics of TOA, like Krippendorff (1995) assert artifacts do not contain any stable meanings but rather afford many different meanings depending on the competencies and socio-cultural context of the users. It does not seem these are mutually exclusive considerations.

The conceptual definition(s) of affordance levied below works to include social, psychological, and technological/physical considerations.

Because there is some concern the term affordance is irresolute and unclear (McGrenere & Ho, 2000), it is important to fully explicate the conceptual and operational definition of the term as it will be used in the current research project. This version of TOA is based on a unique combination of the theory as it has been (re)conceptualized in both sociolinguistics and HCI. It depends on a combination of social affordances (Costall, 1995; Dworkin & Goldfinger, 1985; Valenti & Good, 1991; Wells, 2002), technological affordances (Conole & Dyke, 2004; Hartson, 2003), and configurations (Wells, 2002).
Social affordances can be thought of as the interaction-elements a given social situation affords the involved communicators (Dworkin & Goldfinger, 1985). In any social situation, one might be afforded more or less opportunity to communicate in cooperative, predatory, nurturing, playful, sexual, violent, and other ways (Gibson, 1979/1986). The potential for these types of communication are, in part, determined by what the situation and the objects found there afford the communicators. Socially interactive technologies have social affordances associated with their use (Hutchby, 2001). For example, there is no technical requirement that one person’s instant message must immediately follow another’s, but that is how communicators tend to use it. Similarly, there is no technological constraint or affordance that requires Facebook users to call on particularly lyrical language to describe themselves and their lives but the social constraints and affordances agreed upon by the community of users has made space for this brand of English.

In addition to social affordances, this research project relies upon technological affordances to operationalize the ways the hardware, software, and other design elements of SITs constrain and afford written communication outcomes. For example, the length of a text message is limited by constraints of the user’s phone service (Crystal, 2008). The content of text messages is also constrained by technological factors such as whether a person has an alphabetic or numeric keypad on her/his cell phone. Numeric keypads require more button presses to send a text message than alphabetic keypads, therefore a user with a numerical keypad is more likely to call upon abbreviations and acronyms and send shorter messages than someone with an alphabetic keypad.

The reciprocal relationship between social and technological affordances clarifies how TOA is useful in the current project as it allows for a dual focus on both the technological
constraints/affordances as well as the social and culturally derived constraints/affordances of the situation in relation to the individualized predispositions of the current user (Hutchby & Barnett, 2005). This is not only useful as a means to access the socio-technological nature of SIT communication, but also combats polarizing debates of technological and social determinism (Hutchby, 2001; Graves, 2007). The current project endeavors to test the fruitfulness of TOA to theorize about the ways the design elements and social practices of SITs impact language use and communication competence in other contexts.

Sociolinguists who have examined the written discourse of SIT transcripts often make reference to the “dynamic tension” that forms as people create social language with the aid of their computers, cell phones, and other technological objects (Crystal, 2006; Nastri et al., 2006; Shortis, 2001; Voida et al., 2002). (p. 189). The language of IWD users co-develops in the strain that arises between the affordances of the medium and the goals and expectations of the user (Crystal, 2006, 2008). The dynamic tension between social and technological affordances is neither unique to SITs nor particularly new. Feenberg (1992) shows that this tension existed in an early version (mid-1980s) of the Internet in France as enabled by the Minitel, a technology based partly on the telephone and partly on the computer. Feenberg notes, “the original Minitel function keys were not really appropriate for messaging applications, they were incorporated into messaging programs as well as possible, and users adapted to the poor keyboard by typing in a kind of on-line shorthand rich in new slang and inventive abbreviations” (p. 23). Here, the type of language used in a social context depends both on the affordances of a technological object and the affordances and skills of the communicators using that object.

The term configuration, as outlined by Wells (2002), is an integral concept used in addition to social and technological affordances in the current research project. As previously
discussed, both the technological and social affordances of SITs contribute to the meaning a technological object will have in a given communication situation. Configurations are a combination of technological affordances of the SIT and the socio-cognitive affordances of the human user, which are considered in concert with one another. Wells used Alan Turing’s research to explain “configurations” (originally Turing’s term) and their relationship to affordances. Turing, a British mathematician, developed one of the first abstract computing machines, which included a human user, a pencil, a tab of paper, and some basic mechanical apparatuses and computational programming (called “transitions” by Turing) to better understand foundational mathematical logic (Wells, 2002). Turing’s analysis was an ecological one as the results of his research depended on both the internal state of the human calculator and the physical state of the numerical results written out on the small tab of paper. Much like SITs of today, configurations and technological affordances of the square of paper limited the structure of the results. In this sense, configurations allow for the treatment of affordances as neither wholly subjective nor wholly objective; they break down the subjective/objective binary with a dual focus on the internal cognitive state of the observer and the external and environmental state of the user.

Despite clarification of the particular assemblage of the affordance concept for the current research project, implementation of TOA here is not without limitations. Three aspects of TOA could detract from its utility in the current project, including: a) TOA is best thought of as a meta-theory; b) Implementation of TOA in research on the affordances of emergent technologies has to date been unable to draw upon the complexity and subtlety of the theory, specifically the complimentarity between the object and the user; c) Gibson’s reliance on realism and
objectivism leaves the affordance concept open for criticism and often leads to ontological confusion and misuse of its central concepts (Krippendorff, 1992).

TOA is arguably a tautological covering theory or a meta-theory, especially as developed by Gibson (Mace, 1977), rather than a theory that allows for the generation of testable and falsifiable hypotheses and research questions. That the ideas put forth in TOA are neither verifiable nor falsifiable ironically goes back to that which makes it an attractive theory for the current research project. About this issue Krippendorff (1992) notes, “Gibson’s affordances seem to be nothing but meanings except that they are disowned by their beholders, projected on a perceived environment outside of them” (p. 17). Furthermore, TOA is not a social scientific theory but is better understood as an epistemology (Mace, 1977). The current research, however, attempts to use TOA’s covering nature to beneficial effect by guiding thinking about SITs hardware and software in conjunction with social, cultural, and psychological components rather than in isolation.

An increasing body of empirical research calls on the notion of affordances (Michaels, 2003) yet there has been little extension or development of the concept since the early 1980s (Stoffregen, 2000). While the theory is frequently used in a variety of fields such as HCI, psychology, and sociology to understand social technology use, the theory itself has not matured beyond its early inchoate state as a result of these various research efforts (Stoffregen, 2000). Norman and others (Chemero, 2003; Graves, 2007; Hutchby, 2001; Wells, 2002) have worked to frontline social and cultural issues as a means of understanding how people use and understand technology, but research that uses TOA often falls into the same traps Gibson could not overcome. Implementation of TOA in research on the affordances of emergent technologies often fails to draw upon the subtlety of the theory or advance the theory beyond its meta-
theoretical state (see Arminen & Leinonen, 2006; Clegg, Hudson, & Mitchell, 2005; Conole & Dyke, 2004; Hutchby & Barnett, 2005; Lai et al., 2007). Instead, the affordance concept is used as a way to place primacy on how newer technologies’ affordances directly affect the lives of the users. Other research has done a better job avoiding technological determinism through a concentration on social factors and technological ones (Boyle & Cook, 2004; Kreijns & Kirschner, 2001, Kreijns et al., 2002; Yates & Littleton, 1999; Zhang & Patel, 2002) but few known studies have achieved this when examining SITs.

One way to encourage attention to how users and their social world affects outcomes in conjunction with technological affordances is to examine the ways social configurations allow people to make use of available affordances (Yates & Littlejon, 1999). The inclusion of the metalinguistic scales, a focus on multitasking practices, and other aspects of the current methodology encourage dual attention to the ways effectivities of the college student and the affordances of the technological objects act together as contributors to writing outcomes.

A third limitation of the theory of affordances comes from Gibson’s reliance on realism and objectivism (Krippendorff, 1992). Two separate special editions of the journal Ecological Psychology and one symposium organized to define, discuss, and ultimately redefine what affordances actually mean are testaments to this confusion (Jones, 2003). Without further clarification, the theory of affordances will lead to scientific discovery as cloudy and tenuous as the theory itself (Kirlik, 2004).

Part of the confusion results from Gibson’s own vacillations, which make affordances an initially intriguing but ultimately controversial concept (Costall, 1995; Zhang & Patel, 2006). Hutchby and Barnett (2005) argue “the affordances of artifacts (i.e. manufactured objects) need not derive purely from natural features of the artifacts materiality” (Hutchby & Barnett, 2005, p.
but this is certainly a post-Gibsonian revision of the term. Gibson (1977, 1982) believed the material substance of an object such as its shape and potential for motion determined what it would afford the user. He noted, “The object offers what it does because it is what it is” (Gibson, 1977, p. 78). This idea makes difficult the inclusion of social, political, and cultural factors and is hard to accept as it suggests artifacts have stable meanings regardless of the context in which they are used (Krippendorff, 1995).

The version of TOA implemented in the current project must look at formal written discourse outcomes from a both/and perspective. The technological affordances and the social affordances, as well as the configurations, determine how an object is used and what is made possible by that object in that particular social setting (Nastri et al., 2006). If research using the theory of affordances is able to find the golden mean between the extremes of technological determinism and social determinism, the utility of the theory will be increased and a better understanding of the ways SITs relate to written communication will be engendered.

Current Investigation

The overarching goal of this dissertation is to examine the frequency and form of college students’ use of socially interactive technologies and to determine to what extent that usage is or is not related to college students’ differences in formal written discourse. There is much speculation in both the press and scholarly circles that instant messaging programs and other socially interactive technologies have implications for language change and specifically writing skills (Craig, 2003; Crystal, 2008; Thurlow, 2006). To move the discussion of this important social issue beyond unsubstantiated assertions more research is needed to document whether or not there is reason to continue to link SIT use with young people’s apparently declining communicative writing skills (Baron, 2008; Jacobs, 2004). The current investigation aims to fill
this gap by empirically investigating the possibility of a relationship with two complementary studies.

Jacobs (2004, 2006) and others (Baron, 2008; Carrington, 2005; Lee, 2007; Lewis & Fabos, 2005; Nastri et al., 2006; Voida et al., 2002; Wijekumar et al., 2006) have filled the gap in empirical research by looking at the text-making practices of young people as they communicate with socially interactive technologies. While the samples in these studies have remained quite small, at times including only one subject (Carrington, 2005) and never more than seventy-five, this body of literature has clarified a great deal about young people’s writing practices in relation to socially interactive technologies. First, these studies show that SIT use is quite frequent, even ubiquitous among young people in high schools and colleges in the United States (Baron, 2008; Carrington, 2005; Jacobs, 2004, 2006; Lee, 2007; Lewis & Fabos, 2005; Voida et al., 2002; Wijekumar et al., 2006). Second, there is a growing disconnect between out-of-school texts constructed via SITs and in-school notions of what a written text is and should look like, which are based on print-bound understandings that have colored curricula in the United States educational system (Carrington, 2005).

Third, these qualitative studies have clarified that SITs are multimodal and feature multitasking, concurrency, and frequent inclusion of visual and aural elements in addition to written language (Baron, 2008; Carrington, 2005, Lewis & Fabos, 2005; Wijekumar et al., 2006). Fourth, socially interactive technologies feature written language that is paradoxically speech-like in that it is often playful, informal, and conversational (Baron, 2008; Lee, 2007; Lewis & Fabos, 2005). Resultantly, users tend to pay less attention to structural elements like grammar, spelling, and sentence construction (Baron, 2008; Lee, 2007). Fifth, despite being social in nature, SITs, like other Internet situations, afford communication noteworthy for the social
distance placed between users which filters out many nonverbal, contextual, and parasocial cues (Carrington, 2005; Walther & Parks, 2002). The social but decontextualized nature of SITs leads to a dynamic tension that forms as the goals of the communicator collide with the technological affordances and constraints of the tools (Voida et al., 2002). Sixth, SITs afford text making practices that encourage the remaking, recasting, and remixing of texts in nonlinear ways across interactive spaces, modalities, and discourse structures (Carrington, 2005; Lewis & Fabos, 2005). Seventh, the interactive written discourse that emerges from most SITs is impetuous and nearly instantaneous (Baron, 2008; Carrington, 2005; Lee, 2007).

Based on the previously discussed frequency of use data, the popularity of SITs have moved beyond an emergent form of communication to a primary one among United States college students. Carrington (2005) argues, “digital technologies and therefore [digital] texts are featuring strongly in the habitus and literate competence of children and young people” (p. 479). The following two studies are meant to increase our understanding of the implications of SIT use for literate language use through the examination of a relatively large sample of college students, quantitative research methods, and comparative statistical analyses.

Hypotheses and Research Questions for Study I. The above review of literature in the area of socially interactive technologies and interactive written discourse, along with the contentions advanced by those scholars in regard to the nature of written language use with SITs, provides justification for the first of two studies. The first study works to create a profile of college student SIT users, including their frequency of use in relation to other college students and an examination of their communication competence and cognition to clarify whether there is a connection between frequent SIT use, thought processes, and written social practices in formal settings.
The following hypotheses and research questions are advanced for the first study:

**RQ1:** How frequently do current college students use socially interactive technologies (instant messaging, online social networking, texting, blogging)?

The NEA (2007) reported that book reading declined significantly among college students in a period of rising Internet use (1997-2003). SITs apparently reduce the need for reflection and the likelihood that young people will engage in silent, sustained reading (SSR) associated with books (Kapitzke, 2003; Liu, 2005; Selfe, 1999). SSR is a beneficial form of inquiry that requires a person to grant prolonged attention to a subject’s underlying complexities (Wolf, 2007).

**RQ2:** Will SIT use (instant messaging, online social networking, blogging, text messaging) be related to silent, sustained reading (novels, nonfiction books, newspapers) among college students?

The third research question seeks to understand whether out-of-class writing with SITs (in addition to other media use) is related to school performance. Martin and Myers (2006) define out-of-class communication as, “visits during office hours, contact with the instructor via e-mail or the telephone, conversations before or after class, and informal meetings on campus” (p. 283). Treating SIT usage as “out-of-class communication” fits within the current study’s goal to examine the social appropriateness of the writing skills displayed in students’ formal emails to professors. This analysis will clarify whether a relationship exists between informal out-of-class communication and in-school performance. Lee and Perry (2004) found that among the 409 college students they sampled, those who showed the most preoccupation with instant messaging also typically had the lowest college GPAs. Similarly, Wilson (2005) found adults who texted at work showed reduced concentration, productivity, and lower IQ scores when compared to those who did not text at work. Furthermore, the NEA (2007) reported that the more high school and
college students read for pleasure the higher they score on reading and writing tests and the better they perform in a number of subject areas including math, science, civics, and history.

**RQ3:** Will there be a relationship between SIT use (instant messaging, online social networking, blogging, text messaging) and college grade point average (GPA)?

In addition to an examination of college students’ interactive media use and in-school performance, this research also looks at students’ levels of communication competence and internal cognitive processes through the inclusion of four scales: cognitive flexibility (Martin & Rubin, 1995), need for cognition (Cacioppo et al., 1984), communicative adaptability (Duran, 1983), and conversational sensitivity (Daly et al., 1988). The following hypotheses and research questions are posited for the first study based on the literature covering those four measurement scales in conjunction with the literature based on socially interactive technologies.

Cacioppo and his colleagues (1996) reported that individuals high in need for cognition (H-NFC) are more likely to use technologies that require effortful thinking and are more likely to have positive attitudes towards tasks and activities that require reasoning and problem solving. Henning and Vorderer (2001) argue that differences in need for cognition can be used to explain differences in frequency of media use; they found subjects with a high need for cognition reported significantly lower television viewing rates than subjects low in need for cognition. Based on these findings, the following hypotheses and research questions are advanced for the first study:

**H1:** There will be a positive relationship between need for cognition and book reading (novels, non-fiction books) among college students.

**H2:** There will be a negative relationship between need for cognition and television viewing among college students.

**RQ4:** Is there a relationship between SIT use (instant messaging, online social networking, blogging, text messaging) and need for cognition?

Cognitive flexibility refers to the ability to perceive what is required in a given communication situation and the willingness and ability to adapt behaviors to meet the specific context of that situation (Martin & Rubin, 1995). Spiro and Jehng (1990) argue use of multidimensional and hypertextual Internet technologies allows for increased cognitive flexibility. On the other hand, Autor and his colleagues (2003) claim computers do not yet lend themselves to cognitive tasks demanding flexibility, problem solving, creativity, or the communication of complex ideas and messages. Based on these competing notions, the following research question is advanced for the first study:

**RQ5:** Is there a relationship between SIT use (instant messaging, online social networking, blogging, text messaging) and cognitive flexibility?

Central to the communicative adaptability concept is cross-contextual competence, which forefronts an individual’s ability to perceive situational cues and adapt one’s social script to a given situation (Duran & Kelly, 1985). Most SITs allow for the remaking and remixing of texts across a multitude of interactive spaces, modalities, and discourse structures (Carrington, 2005; Lewis & Fabos, 2005). Based on these notions, the following research question is advanced for the first study:

**RQ6:** Is there a relationship between SIT use (instant messaging, online social networking, blogging, text messaging) and communicative adaptability?
Conversational sensitivity (Daly et al., 1988) has been associated with communicating for pleasure, affection, and relaxation and a strong need for intimacy (Hosman, 1991). Based on these findings, the following research question is advanced for the first study:

**RQ7:** Is there a relationship between SIT use (instant messaging, online social networking, blogging, text messaging) and conversational sensitivity?

*Hypotheses and Research Questions for Study II.* The above review of literature targeting cross-contextual linguistic conventions and metalinguistic understanding provide justification for a second study. Baron (2003) claims that informal linguistic practices commonly found in interactive written discourse are also permeating traditional off-line and online writing. Baron (2008) argues if SITs really have the characteristics of informal speech then they have the “potential to chip away at the prescriptive standards of traditional written language” (p. 46). Others, however, are not completely convinced.

Braun (2007) and Crystal (2008) argue high school and college students can see a difference between technologies and writing techniques used in casual versus formal contexts. Findings from Lewis and Fabos (2005) and Carrington (2005) support this claim as both studies report student subjects were able to analyze differing functions of various communication technologies and use mediated messages thoughtfully and strategically. That said, both of these studies’ researchers admit their subjects are not typical of the average student as they used small samples (one and seven subjects, respectively), which were in both cases comprised of middle class whites enrolled in specialized high schools. The current second study uses a larger sample of students performing in an experimental laboratory setting to analyze the interrelatedness of SIT usage frequencies, multitasking and other affordances related to writing with a computer, in
combination with students’ predispositions towards communicative adaptability and flexibility, as well as their discourse skills in formal social contexts.

The following hypotheses and research questions are advanced for the second study:

**RQ1:** Will students’ SIT use be related to the inclusion of speech-like language typical of SITs in two formal communication situations?

**RQ1a:** Will students’ SIT use be related to the formalness and formatting of messages in two formal communication situations?

**RQ1b:** Will students’ SIT use be related to the inclusion of language typical of SITs in two formal communication situations?

**RQ1c:** Will students’ SIT use be related to the inclusion of grammatical mistakes in messages in two formal communication situations?

Writing practices associated with SITs are multimodal and feature frequent multitasking and concurrency during message creation (Baron, 2008; Carrington, 2005, Lewis & Fabos, 2005; Wijekumar et al., 2006). There are numerous negative effects of cognitive multitasking and concurrency including reduced informational recall and degraded performance on IQ tests (Baron, 2008; Wijekumar et al. 2006; Wilson, 2005). The NEA (2007) argues that focused engagement with a written text is reduced when students multitask with other media while reading but “more data are needed to show conclusively that multitasking, especially with information technology, helps or hinders productivity in any single task” (p. 44). Grounded in these findings and still unanswered questions about the impact of multitasking, the following hypotheses are advanced for the second study:
**H1:** Multitasking frequency will be related to the inclusion of language typical of SITs (in terms of: formalness and formatting, inclusion of an SIT-orthography, and grammatical mistakes) in two formal communication situations.

**H1a:** Students who are encouraged to multitask during the creation of two formal written messages in a computer lab will be more likely to include language typical of SITs when compared to students who are not encouraged to multitask.

**H1b:** Spending time off-task, engaging in off-task behaviors, using unrelated websites, and using additional programs (in addition to what is necessary to complete the tasks) will be related to the inclusion of language typical of SITs in two formal communication situations.

To be effective and appropriate, communicators must draw on the subtleties of the social, physical, and cultural context of the exchange to formulate their messages (Slobin, 1973). The second study investigates the importance of context through measurements of students’ levels of metalinguistic understanding. As previously argued, cognitive flexibility, need for cognition, communicative adaptability, and conversational sensitivity are all related to metalinguistics. For this reason, the following hypothesis is posed for the second study:

**H2:** There will be a positive relationship between cognitive flexibility, need for cognition, communicative adaptability, and conversational sensitivity and the literary and social appropriateness of a student’s written messages in two formal communication situations.
CHAPTER II: METHOD

This chapter details the methodology for two studies that examined the relationship between college students’ use of socially interactive technologies and formal written discourse skills. The first study was intended to empirically establish a profile of SIT users; the second investigated if and how informal communication practices common in SITs relate to college students’ written discourse in more formal communication situations.

The first study employed survey methodology and quantitative data collection instruments as a means of testing hypotheses and answering research questions. The second study used students’ responses from portions of the survey instrument to examine how students’ media use and socio-cognitive individual differences impact the construction of two formal written communication texts within a quasi-experimental laboratory setting (Campbell & Stanley, 1966; Hocking, Stacks, & McDermott, 2003). This second study called upon a subset of the subjects from Study I to test the remaining hypotheses and research questions. Pilot tests of both the survey instrument in Study I and the laboratory study protocol in Study II were conducted with samples of 57 and 21 students, respectively, to establish the usability, validity, and reliability of the questionnaire and procedures in the lab study. Both studies were submitted to and approved by the University’s Human Subjects Review Board for use of human participants before data collection began (including data collection for the pilot tests). What follows is the description of participants, materials, and procedures for each study.

Study I

Participants. Participants for this study were drawn from multiple courses at a large Midwestern university. Participants came from one small section of an arts management class, one large section of a communication class for non-majors, three medium sized sections of
upper-level communication classes, and numerous sections of a first-year experience class that included both upperclassmen and first-year students. This group of courses provided an appropriate participant pool for this study because the courses contained students from a variety of departments, majors, and undergraduate levels.

Materials. The materials for this study consisted of one information packet distributed to students in class. The packet included a cover sheet that detailed the extra credit options included in the remainder of the packet. This cover sheet also doubled as a participation consent form, which each student signed before completing Study I. The first extra credit option consisted of filling out a questionnaire for Study I. The questionnaire included: a) demographic information (see Appendix A), b) a media use section (see Appendix B), and c) a section that contained four measures of communication predispositions (see Appendix C). The second extra credit option covered in the information packet was participation in the laboratory exercise for Study II. A brief description of this second extra credit option and a written invitation for participation were included in the information packet. This allowed for participants in the second study to be drawn directly from the pool of students participating in the first study.

In the first section of the questionnaire (in Study I), each student participant was asked to report her/his age, gender, ethnicity, major, grade point average, academic class rank, ACT and SAT scores, and formal writing experience in school and at work. A total of 371 undergraduate students participated in this study. Of those 371 students, 160 were male (43.1%) and 210 were female (56.6%). One participant did not provide a gender. Ages ranged from 18 to 32, with a mean age of 20.19 years. One participant did not provide an age. A total of 297 participants reported they were White (80.1%), 46 were African American (12.4%), 9 were Hispanic (2.4%), 9 were Multi-racial (2.4%), 5 were Asian (1.3%), and 2 were Native American (0.5%) Three
participants did not provide an ethnicity. The academic class rank breakdown in this study was as
follows: 121 freshmen (32.6%), 49 sophomores (13.2%), 79 juniors (21.3%), and 122 seniors
(32.9%).

The media use section of the questionnaire asked students to report their relative
preference for various media formats including: instant messaging, online social networking
websites (MySpace and Facebook), text messaging, blogging, television, novels, nonfiction
books, magazines, newspapers, and content on the WWW. Specifically, students reported how
many minutes or hours they use each medium on a typical weekday and a typical weekend day.
In data analysis, weekday and weekend day minutes were combined and averaged to allow for a
more comprehensible examination of the frequency with which students used each medium on a
typical day. In the results section, all reported media use totals and means reflect a combined
average of students’ media use across a typical weekday and a typical weekend day.

Media researchers need to measure how much time young people spend using various
media to understand the impact media can have on them and to what extent frequency of use is a
factor in their development (Ziegler, 2007). However, self-report questionnaires that ask young
people to recall their media exposure can be subject to problems of accurate recall (Jordan,
Trentacoste, Henderson, Manganello, & Fishbein, 2007). For this reason, students in Study I
were also asked to report their media use as compared to other college students on a five-point
Likert-type scale (see Appendix B) and to report the amount they liked or disliked using a given
medium on five-point Likert type scale (see Appendix B). In the results section, research
questions were answered and hypotheses tested by examining students’ differences in media use
in all three ways (minutes/hours on a typical day, frequency of use as compared to other college
students, and level of like or dislike for a given medium). In the media use section of the
questionnaire, students also responded to questions regarding their multitasking practices and other contextual elements of their media habits.

The third section of the questionnaire included elements from four established measures of socio-psychological predispositions, all of which focus on communication competence and/or cognition. This section included 17 of the original 36 questions from the Conversational Sensitivity Scale (Daly et al., 1988), 10 of the original 30 questions from the Communicative Adaptability Scale (Duran, 1983), all 12 of the questions from the Cognitive Flexibility Scale (Martin & Rubin, 1995), and all 18 of the questions from the short version of the Need for Cognition Scale (Cacioppo et al., 1984). The Cronbach’s Alpha reliability for the Conversational Sensitivity Scale was .83, for the Communicative Adaptability Scale it was .76, for the Cognitive Flexibility Scale it was .82, and for the Need for Cognition Scale it was .86.

Procedure. The aforementioned packet of materials was distributed to students during normal class sessions. In all cases, students had class time to complete the first extra credit option. Regardless of whether or not the students chose to participate in the first or the second study, all materials were then placed back in the packet and returned to the researcher who was monitoring the class session. Prior to data collection, students were offered an equivalent alternative extra credit assignment based upon the wishes and needs of the instructors of each class. However, all students who were present on the day the researcher visited each class chose to participate in the first study. The completion of the in-class questionnaire ended participation in the first study.
Study II

Study II examined how students’ media use and varying levels of communication competence are or are not related to the carryover of common digital writing practices from informal interactive written communication situations to more formal contexts. Study II has three independent variables and one dependent variable. Based on data from Study I, the first IV is each respondent’s preference for various SITs and other media. The second IV is the students’ level of metalinguistic understanding (based on scores on the CSS, CAS, CFS, and NFCS), also from the questionnaire in Study I. The third IV in Study II is the multitasking practices of each student, which were measured using a computer screen-capture program that recorded all the actions each student took on the laboratory computer as they created their formal messages. The DV in Study II is a cross-situational communication performance score, which is based on the writing included in the students’ formal texts submitted electronically during the computer laboratory session. It is important to point out that the affordances of a computer laboratory on a university campus might have also have an impact on the DV in addition to of the aforementioned IVs. It has previously been argued that educational settings tend to privilege and honor certain forms of written discourse (based on a print tradition) over others (i.e., less pedagogically established interactive written discourse) (Braun, 2007; Carrington, 2005). It is possible that students’ will not only adjust their message to their “reading” of the social requirements of the prescribed writing tasks but also the formal academic setting in which those tasks take place.

Participants. Participants for the second study were drawn from the student sample used in the first study. Each student who filled out the questionnaire for Study I read a brief
description of the second extra credit option (Study II) and a written invitation for participation, both of which were contained in the aforementioned information packet.

Demographic responses reported for each student in Study I were also used in Study II. This fact (and the fact that IVs in Study II were based on responses given in Study I) necessitated each student report an identifying code number used in both Study I and Study II. For this purpose, a six-digit code was implemented in this research project. The first four digits of the code came from the participant’s birth month and birth day while the last two digits came from the first two letters of the participant’s mother’s maiden name. The six-digit code ensured data could be linked across the two studies while maintaining confidentiality.

A total of 137 undergraduate students signed up to participate in the second study. That means 36.9% of the students who participated in Study I also signed up to participate in Study II. Despite the fact that each student received a reminder email two days prior to their scheduled reporting date (and a second email offering an opportunity to sign up for a later date if and when they did not report to the lab), only 66 undergraduate students participated in the second study. That means 48.2% of the students who signed up to participate in Study II actually reported to the computer lab on their scheduled date. Of those 66 students, three did not complete the email to the professor and three did not complete the letter of interest sent via email to a fictitious company. These six subjects were subsequently removed from the sample due to incomplete submissions, leaving the Study II sample at 60 participants. All of this participant attrition means that only 16.2% of the students who participated in the first study also participated in a measurable way in the second study, which comes out to an attrition rate of 83.8%.

The problem with such a high attrition rate is that it is likely the students who chose to participate in Study II were systematically different from students who chose not to participate in
ways relevant to that which was being studied (Hocking et al., 2003). For example, because additional extra credit was made available to any student who participated in Study II, it is likely that students who were more concerned about their grades and associated grade point averages were also those students more likely to report to the laboratory and complete the writing tasks. Additionally, it might be that those students most interested in computer mediated communication were also those students most likely to participate in the second study. In short, because the students were not randomly selected for Study II from the Study I sample and because the attrition rate was rather high, a legitimate threat to the internal validity of the findings generated from Study II was introduced (Hocking et al., 2003).

Of the 60 students who participated in Study II, 16 were male (26.7%) and 43 were female (71.7%). One participant did not provide a gender. Ages ranged from 18 to 27, with a mean age of 20.81 years. One participant did not provide an age. A total of 48 participants reported they were White (80.0%), 7 were African American (11.7%), 2 were Hispanic (3.3%), 1 was Multi-racial (1.7%), 1 was Asian (1.7%), and 1 was Native American (1.7%). The academic class rank breakdown in this study was as follows: 6 freshmen (10.0%), 8 sophomores (13.3%), 15 juniors (25.0%), and 31 seniors (51.7%).

The second study used students’ responses from the media use portion of the survey instrument to examine how students’ media practices related to the construction of two formal written communication texts. The second study also used students’ responses from the third portion of the survey instrument to examine how students’ predispositions towards various cognitive, social, and communicative factors related to the construction of two formal written communication texts.
Materials. The materials for this study included three computers in a laboratory setting equipped with a screen-recording program called HyperCam and a PowerPoint presentation that outlined the instructions for each student’s time in the laboratory. The PowerPoint presentation also acted as Study II’s stimuli. An external hard drive was used to securely store each student’s digital video file. Finally, data from each student’s completed questionnaire in the first study was linked statistically to their typewritten responses and digitally recorded computer session from the second study through use of the aforementioned six-digit code.

Two possible stimuli were used as a means of exposure when students were brought into the computer lab. There was one main difference between Stimuli 1 and Stimuli 2, which acted as the manipulation in this laboratory experiment. The manipulation was implemented to test whether the opportunity to engage in multitasking and concurrent communication behaviors would have an effect on the written message outcomes of the participants. Specifically, Stimuli 1 contained a manipulation prompt not presented in Stimuli 2, thus students in Stimuli 1 acted as the experimental group while students in Stimuli 2 acted as the control group.

Students were randomly assigned to either Stimuli 1 or Stimuli 2 through use of a random number table with a random start and skip interval (based on the size of the sample) to allow an equal chance for each student to be placed in either stimuli (Babbie, 2001). In Stimuli 1 (the experimental group), students were informed they should feel free to use any available program or Internet application, including socially interactive technologies such as instant messaging and Facebook, while they worked on their emails and letters, which are discussed in greater detail below. Students in the experimental group were also asked to “settle in” and use the computer as they would any other computer on campus. In Stimuli 2 (the control group), the PowerPoint presentation did not include this manipulation prompt; students were not granted the same
freedom to use the computer for any purpose they desired but were instead prompted to only work on the two formal emails. This manipulation was implemented in the pilot test and results revealed that students exposed to Stimuli 1 were more likely to use computer programs and websites not directly related to the tasks at hand when compared to students exposed to Stimuli 2. The exact PowerPoint presentation used for Stimuli 1 and Stimuli 2 can be found in Appendix D and Appendix E, respectively.

Both Stimuli 1 and Stimuli 2 contained two main parts, each of which were completed by all participants. For completion of the first part, all students were asked to imagine they had just missed an important class period for a course in their major. Both PowerPoint presentations also noted that according to a friend in the class, an important assignment was distributed and partially completed the day the participant missed. At this point, each student was asked to send an email message to the course professor (a fictitious professor named Dr. K) about the possibility of making up the missed work. Both PowerPoint presentations (Stimuli 1 and Stimuli 2) went on to instruct each participant to send the email to an address established solely for this research project.

For completion of the second part of Study II, all students were asked to imagine they had just come across a job listing for an internship (at a fictitious company named Company Q) that would be a good fit for their current course work and future career plans. Both PowerPoint presentations (Stimuli 1 and Stimuli 2) asked each student to write a letter of interest in reference to the job listing. As can be seen in Appendices D and E, both stimuli also included a basic job listing to which students were asked to respond. Upon completion of the letter of interest, the students were asked to send a second email with the letter attached to a second email address also established solely for this research project.
Procedure. Study II was conducted with a subset of the college student sample used in the first study, namely students who were interested in receiving additional extra credit. Upon the completion of Study I, interested students signed up for a time to report to the computer lab. Two days prior to their reporting date, each student was reminded of their scheduled date and time via email. Upon arrival at the computer lab, participants were asked to sign a second consent form for Study II and were then assigned to a lab computer. Each lab computer was equipped with a screen-recording program, HyperCam, which created a video recording of the actions each student took while they were logged on to that computer. HyperCam is a video-capture program that records all the activities from a Windows screen and saves it to an AVI (Audio-Video Interleaved) movie file (http://www.hyperionics.com/hc/). HyperCam was pre-tested in the pilot study for this research program and in an unrelated study; both times the program proved reliable and easy to use. All student participants were informed that their session was being recorded and that they could leave at any time or once they had completed both the email to the professor and the letter of interest.

Once at the computer, each student was randomly exposed to either Stimuli 1 or Stimuli 2 and given verbal and written instructions regarding the completion of the laboratory documents. At this point, HyperCam was set to record each participant’s computer usage. The main researcher reviewed the complete PowerPoint presentation of instructions with each participant and asked if s/he had any questions. After all questions were answered, the researcher explained he would be just outside the computer lab and the student should report to him after the tasks were completed. At the completion of the lab session, the student was debriefed and assured the researcher would provide her/him with information regarding the study’s findings once the research was completed. The student was then thanked for their time and dismissed.
After all student participants went through the data collection portion of the second study, quantitative content analysis methods were used to examine each student’s cross-situational written communication skills. Prior to coding, two recording instruments were developed. The first recording instrument was used to code the students’ written submissions. The second recording instrument was used to code the videos that captured each student’s digital behaviors while they worked on their written submissions. Two units of analysis comprised the first recording instrument: the students’ letter of interest and the students’ email to the professor. The unit of analysis in the second recording instrument was each student’s digital video file.

The first recording instrument, used to code the students’ written submissions, consisted of two main parts. The first part was implemented to analyze the first unit of analysis (the letters of interest) while the second part was used to analyze the second unit of analysis (the emails sent to the professor). The first part of the recording instrument consisted of five separate sections. Section 1 covered the most basic elements of the letters, including a variable used to code whether the participant successfully sent an email to the address provided for Company Q and a second variable used to code whether the attachment of the letter of interest was handled appropriately.

Section 2 dealt with issues of formalness and formatting in the letter. This section included variables used to analyze the following: the salutation used in the letter, the closing used in the letter, whether the letter conformed to a standard letter format, whether paragraphs were used appropriately, whether the length was appropriate for a letter of interest, whether the participant included their full name and contact information, whether the participant included details about their job-related skills and previous work experience, and whether the participant used appropriate language and tone of voice for a formal letter.
Section 3 used a number of variables to code for the presence (or lack thereof) of the type of language identified in the literature as commonly used in socially interactive technologies. This section included variables implemented to assess whether students included the following SIT-related writing practices: intentional misspellings (acronyms, letter homophones, and colloquial spellings); misuse of uppercase and lowercase lettering; use of emoticons or letter/symbol pictures; use of reduplicated letters for emphasis; informal use of periods, ellipses, and other symbols as subject breaks; and use of contractions and informal language.

Section 4 asked coders to assess the letters of interest for grammatical mistakes. In this section, each coder looked for the presence of grammatical errors including but not limited to: run-on sentences, sentence fragments, comma splices, missing commas, misspellings, verb agreement, and tense problems.

The second part of the first recording instrument was used to analyze the emails that students sent to a fictitious professor (Dr. K). This part of the recording instrument consisted of five separate sections which were quite similar to the five sections in the first part. Section 1 covered the most basic elements of the written submissions, including a variable used to code whether the participant successfully sent an email to Dr. K. Section 2 dealt with issues of formalness and formatting in the email. This section included variables used to analyze the following: whether the email included an appropriate and useful subject line, a salutation, a closing, the participant’s full name, the day the participant missed class, the course the participant was taking with Dr. K (i.e., IPC 102), an explanation of why the participant missed class, a query about making up the missed work, and whether the length of the email, tone of voice, and language used were appropriate. Section 3 called upon the same variables used in the first part of the recording instrument to code for the presence of the type of language typically
found in socially interactive technologies. Section 4 asked coders to assess the grammar used in the emails to the professor. See Appendix F for a complete description of both parts of the recording instrument used to code the participants’ written submissions.

The second recording instrument was used to analyze the digital video recordings taken during each student’s time in the computer lab. In this scheme, coders were asked to look for the presence of multitasking and concurrency behaviors. Specifically, coders analyzed the videos to determine: whether the participant was exposed to Stimulus 1 or Stimulus 2, how many different computer programs the participant used while in lab, how many websites the participant visited while in lab, how many off-task behaviors the participant engaged in while in lab, and how much time each participant spent off-task while in lab. This second part of the second recording instrument asked coders to record how much total time the student spent actively using the computer in the computer lab (both on-task and off-task). See Appendix G for a complete description of the recording instrument used to code the digital video recording of each student’s time in the computer lab.

Before any coding commenced, the main researcher tested an initial draft of the coding instrument by informally coding all written submissions and video files from the pilot test. Based on this process, coding problems were identified and the instrument was revised, especially to be sure the instrument would allow for reliable coding by a trained set of competent coders (Lombard, Snyder-Duch, & Bracken, 2002). Next, two independent reviewers were trained to use the coding scheme and analyzed a small subset of written submissions which were collected for the pilot test and not included in the final data set. The first independent reviewer was a male, Assistant Vice President at a Fortune 500 Company on the east coast. This reviewer also served as a writing tutor during his senior year of undergraduate work. The second independent
reviewer was a female, Professor Emeritus of English at a mid-sized university on the east coast. The independent reviewers were included to increase the external validity of the coding schemes and to avoid a tautological recording instrument. Both independent reviewers were able to implement the coding scheme to analyze some of the pilot study’s participants’ submissions. Each independent reviewer made a number of suggestions that were implemented into Study II’s methodology. Again, this process increased the usability and clarity of the recording instruments and also served as an external validity check of the measure.

The main researcher in this study was also the first coder. Consistent with content analysis methods (e.g., Riffe, Lacy, & Fico, 1998; Wimmer & Dominick, 2006), 30% of the participants’ formal messages and videos were randomly selected (through use of a random number table with a random start and a definitive skip interval) and independently coded by two independent coders (in addition to the main researcher). The first independent coder was a doctoral student in the School of Communication Studies at a large Midwestern university with a BA in English. A Communication scholar with a background in English is a good fit for a content analysis that includes careful assessment of students’ writing. The second independent coder was an instructor in the Theatre and Film Department at a large Midwestern university with a BA in English, who also served as a writing fellow during her time as an undergraduate. Use of a coder with a background in English who is also a member of a media department is a good fit for the current study.

The second and third coders received extensive instruction on how to use all elements of both recording instruments, including more than ten hours of intensive training with two subsets of written submissions and videos collected for the pilot test and not included in the final data set. There were four training sessions and two rounds of coding pilot test data to familiarize each
After each round, intercoder reliability was estimated using Krippendorff’s (2004) alpha to determine variables that were not coded consistently by the coders. Upon the completion of the estimation of intercoder reliability, all three coders met to discuss similarities and differences in their approach to the coding, especially in relation to the coding scheme, which is outlined below. See Appendix H for an example of how coding decisions were made by coders for each variable in the analysis.

After training and coding were completed, intercoder reliability was estimated using Krippendorff’s (2004) alpha. If disagreements occurred in the codes used for the reliability sample (the 30% of the sample coded by all three coders), then a majority decision rule was implemented (Lombard et al., 2002) and the mode was considered the coding norm (Potter & Levine-Donnerstein, 1999). Specifically, if two coders coded a variable with the same score and the third coder deployed a different score, then the score recorded by the two coders who were in agreement was entered in the final dataset. If there was not a definitive majority, then the main researcher served as the tie-breaker and his score was used (Lombard et al., 2002). The range of reliability coefficients of the coded variables is 0.30 to 1.00, the mean is 0.82, and the median is 0.84. For the coding of a variable to be considered reliable it is required that Krippendorff’s alpha be .70 or higher (Lombard et al., 2002). Four of the final 45 variables were not coded reliably and were subsequently dropped from data analysis (Neuendorf, 2002). The remaining 41 variables were coded reliably (alpha between .70 and 1.00) and were thus kept in the data set used for the second study. See Table 2.1, which is presented across the next three pages, for the reliability coefficients of all 45 variables used in Study II.
Table 2.1

*Intercoder Reliability for the Variables used in Study II*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Krippendorff’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part 1. Variables used to code the letters of interest:</strong></td>
<td></td>
</tr>
<tr>
<td>Section 1. The Basics of the Letter:</td>
<td></td>
</tr>
<tr>
<td>V1.1.1. Email sent successfully to Company Q?</td>
<td>1.00</td>
</tr>
<tr>
<td>V1.1.2. Email and letter attachment handled appropriately?</td>
<td>.95</td>
</tr>
<tr>
<td>V1.1.3. Total for Part 1, Section 1</td>
<td>.95</td>
</tr>
<tr>
<td>Section 2. Formalness and Formatting Variables:</td>
<td></td>
</tr>
<tr>
<td>V1.2.1. Did the email include a useful subject line?</td>
<td>.76</td>
</tr>
<tr>
<td>V1.2.2. Did the participant include a salutation in the letter?</td>
<td>1.00</td>
</tr>
<tr>
<td>V1.2.3. Did the participant include a closing in the letter?</td>
<td>.75</td>
</tr>
<tr>
<td>V1.2.4. Was the letter in standard letter format?</td>
<td>.73</td>
</tr>
<tr>
<td>V1.2.5. Did the participant include the job reference number?</td>
<td>1.00</td>
</tr>
<tr>
<td>V1.2.6. Did the person include the contact person’s name?</td>
<td>1.00</td>
</tr>
<tr>
<td>V1.2.7. Did the person include their name and contact information?</td>
<td>.88</td>
</tr>
<tr>
<td>V1.2.8. Did the participant use paragraphs appropriately?</td>
<td>.82</td>
</tr>
<tr>
<td>V1.2.9. Is the length of the letter appropriate?</td>
<td>.88</td>
</tr>
<tr>
<td>V1.2.10. Did the participant include details about job-related skills?</td>
<td>.75</td>
</tr>
<tr>
<td>V1.2.11. Did the participant use appropriate tone and language?</td>
<td>.44*</td>
</tr>
<tr>
<td>V1.2.12. Total for Part 1, Section 2</td>
<td>.71</td>
</tr>
<tr>
<td>V1.2.13. Range for Total in Part 1, Section 2</td>
<td>.84</td>
</tr>
</tbody>
</table>
Table 2.1 (Continued)

*Intercoder Reliability for the Variables used in Study II*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Krippendorff’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 3. SIT-Related Variables:</td>
<td></td>
</tr>
<tr>
<td>V1.3.1. Total for Part 1, Section 3</td>
<td>.71</td>
</tr>
<tr>
<td>V1.3.2. Range for Total in Part 1, Section 3</td>
<td>.72</td>
</tr>
<tr>
<td>Section 4. Grammar Variable</td>
<td></td>
</tr>
<tr>
<td>V1.4.1. Range for Total in Part 1, Section 4</td>
<td>.74</td>
</tr>
<tr>
<td>Section 5. Final Assessment of the Letter</td>
<td></td>
</tr>
<tr>
<td>V.1.5.1. Was the letter well written?</td>
<td>.71</td>
</tr>
<tr>
<td>Part 2. Variables used to code the emails to the professor:</td>
<td></td>
</tr>
<tr>
<td>Section 1. The Basics of the Email</td>
<td></td>
</tr>
<tr>
<td>V2.1.1. Email sent successfully to the professor?</td>
<td>1.00</td>
</tr>
<tr>
<td>Section 2. Formalness and Formatting Variables:</td>
<td></td>
</tr>
<tr>
<td>V2.2.1. Did the email include a useful subject line?</td>
<td>.71</td>
</tr>
<tr>
<td>V2.2.2. Did the participant include a salutation in the email?</td>
<td>.85</td>
</tr>
<tr>
<td>V2.2.3. Did the participant include a closing in the email?</td>
<td>.82</td>
</tr>
<tr>
<td>V2.2.4. Did the participant include their name in the email?</td>
<td>.88</td>
</tr>
<tr>
<td>V2.2.5. Did the participant specify which class they were referencing?</td>
<td>.93</td>
</tr>
<tr>
<td>V2.2.6. Did the participant specify which day they missed class?</td>
<td>.84</td>
</tr>
<tr>
<td>V2.2.7. Did the participant say why they missed class?</td>
<td>.78</td>
</tr>
<tr>
<td>V2.2.8. Did the participant ask about making up the missed work?</td>
<td>.68*</td>
</tr>
<tr>
<td>V2.2.9. Is the length of the email appropriate?</td>
<td>.75</td>
</tr>
<tr>
<td>Variable</td>
<td>Krippendorff’s Alpha</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>V2.2.10. Did the participant use appropriate tone and language?</td>
<td>.30*</td>
</tr>
<tr>
<td>V.2.11. Total for Part 2, Section 1</td>
<td>.75</td>
</tr>
<tr>
<td>V2.2.12. Range for Total in Part 2, Section 2</td>
<td>.60*</td>
</tr>
</tbody>
</table>

Section 3. SIT-Related Variables

| V2.3.1. Total for Part 1, Section 3                                    | .90                  |
| V2.3.2. Range for Total in Part 1, Section 3                          | .84                  |

Section 4. Grammar Variable

| V2.4.1. Range for Total in Part 1, Section 4                          | .77                  |

Section 5. Final Assessment of the Letter

| V.2.5.1. Was the email well written?                                  | .72                  |

Part 3. Overall Total Variable for the letter and email combined

<table>
<thead>
<tr>
<th>Part 4. Variables used to code the participants’ digital videos</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>VA.1. Was the participant given stimulus 1 or stimulus 2?</td>
<td>1.00</td>
</tr>
<tr>
<td>VA.2. How many programs did the participant use?</td>
<td>.90</td>
</tr>
<tr>
<td>VA.3. How many functional websites did the participant visit?</td>
<td>.96</td>
</tr>
<tr>
<td>VA.4. How many dysfunctional websites did the participant visit?</td>
<td>.99</td>
</tr>
<tr>
<td>VA.5. How many other off-task behaviors did the participant enact?</td>
<td>.90</td>
</tr>
<tr>
<td>VA.6. Total Time Spent off-task</td>
<td>.92</td>
</tr>
<tr>
<td>VB.1. Number of minutes the participant used the computer</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Indicates a variable that was below the .70 cut point set for this study for a reliable variable. These variables were removed from the dataset during data analysis.
Upon the completion of the coding process, each student’s email and letter of interest was given a formalness and formatting score, an SIT-related language score, and a grammar score. Students were then given a total score for their performance on the letter and a separate total score for their performance on the email. Based on a summation of these scores, each student was also given an overall score which totaled that student’s performance on all variables from both the letter and the email (except those that were removed due a lack of reliability). Additionally, a numerical summation of each video rendered a quantitative snapshot of the context of the computer usage, especially the multitasking behaviors of the participants. Several totals were calculated for each student: time spent off-task while in the computer lab, number of off-task behaviors, number of unrelated websites used, and number of additional programs used beyond the minimum needed to complete the tasks. See Appendix G for a complete description of the recording instrument used to code the digital video recording of each student’s time in the computer lab.
CHAPTER III: RESULTS

This chapter details the results of two related studies that examined the relationship between college students’ use of socially interactive technologies and the students’ formal written discourse. The first study called upon a media use questionnaire to answer research questions and test hypotheses advanced in the previous chapter. For the second study, results were generated by combining data from the questionnaire, as filled out by a sub-sample of the college students from Study I, with experimental computer laboratory data in the form of two written communication exercises and one digital video generated by each student. Content analysis methods were then implemented to answer research questions and test hypotheses posed in the previous chapter about the students’ formal written communication skills in relation to their social digital media use practices.

In both studies, research questions were answered and hypotheses were tested by examining students’ media use patterns in three distinct ways. First, a series of variables that employed continuous scales were implemented to measure student SIT use in the number of minutes a student uses each medium on a typical day. This measurement is referred to as “Minutes per day” in the following tables and statistical analyses. Second, students’ frequency of media use was also measured using an ordinal five-point scale that asked students to consider their media use habits in relation to other college students. This measurement is referred to as “Compared to Other College Students” or simply “Compared” in the following tables and statistical analyses. Third, students’ media use was measured with an ordinal five-point scale that asked students to think about their media use habits according to how much they like or dislike using a given medium. This measurement is referred to as “How Much College Students Say they Like” a given medium or simply “Liking” in the following tables and statistical analyses.
Because the current dissertation called upon a series of correlations to answer the research questions and test the hypotheses, it was important that the central variables be normally distributed. To use a Pearson $r$ correlation coefficient, two criteria must be met: All variables being correlated must be normally distributed or at least approximate a normal distribution and the variables must be measured on an interval or ratio scale (Hinkle, Wiersma, & Jurs, 2003). Although a sample should be normally distributed to use Pearson correlations, Hayes (2005) argues that “almost nothing that social scientists measure can be described as normally distributed. To be sure, some distributions are similar to the normal distribution, but a truly normal distribution is relatively rare except in theory” (p. 50).

Regardless of the slim possibility for normality, each distribution of each key variable was examined prior to data analysis. Specifically, a series of histograms and box plots (as well as numerous scatter plots) were examined. The histograms revealed that while a number of the variables showed a fair amount of skewness and kurtosis, all the key variables approximated the normal curve. For example, results regarding students’ daily use of a computer for social reasons showed a mean of 106.163, a skewness of 1.812, a kurtosis of 3.368 and an $SD$ of 95.894. It is important to note the mean values and standard deviations in Table 3.1 and Table 3.2 are presented in minutes (rather than hours) and therefore might appear larger than they actually are.

Hayes (2005) and Warner (2007) both point out that Pearson $r$ values are highly susceptible to being affected by extreme scores in a distribution (in much the same way standard deviations are affected by extreme scores). If and when particularly extreme scores were identified in the current data set, at least two options were available. First, Spearman $r$ correlations could have been used in place of the Pearson $r$ because Spearman $r$ is less likely to
be affected by extreme scores as all scores are put on a standard scale (much like Z-scores). This standardization tends to minimize the effect extreme scores will have on the value of $r$. Therefore, the implementation of Spearman $r$ is intuitively appealing because it reduces the likelihood of arriving at spurious results based on a few extreme scores in the sample. That said, there are a few reasons to limit the number of Spearman correlational tests in a research project couched within a communication studies approach. Specifically, Spearman $r$ is not widely used in published communication research (Hayes, 2005). This reality is likely due to the fact that Spearman $r$ is thought of as a weaker test than the Pearson $r$ because it is nonparametric (while Pearson is parametric) and because Spearman $r$ values cannot be converted to $r^2$ (coefficient of determination), while Pearson $r$ values can (Hayes, 2005). The coefficient of determination is useful in estimating the amount of variance that can be explained by the associated $r$ value, a desirable rubric as it helps contextualize the strength of the relationship between two variables.

The second option, were any extreme scores found in the distribution, was to remove the participants’ data from further analysis, especially scores that seemed impossible in relation to the question being asked (Warner, 2007). Because Pearson $r$ values can be highly affected by extreme scores in the distribution and because Spearman $r$ is a less desirable test in communication research, it was decided subjects with particularly extreme scores would be removed from the distribution¹.

The second criteria for using a Pearson $r$ correlation coefficient, that the variables must be measured on an interval or ratio scale, was not met for all the variables used to answer the research questions and test the hypothesis. Specifically, as previously noted, the series of “Compared” and “Liking” variables were measured on an ordinal scale. For this reason, non-parametric Spearman $r$ correlation coefficients were used instead of Pearson $r$ correlations when
these variables were used, despite the fact that Hayes (2005) argues Pearson $r$ is commonly used (and abused) by communication scholars to examine relationships among ordinal level variables.

*Study I*

The first research question asked how frequently college students use socially interactive technologies including instant messaging programs, MySpace, Facebook, blogs, and text messaging functions on their cell phones. Table 3.1 covers the number of college students in the sample who use each socially interactive medium, the percentage of college students in this sample that use each medium, and the mean number of minutes each medium is used per day by the students (along with the related standard deviations).

Nearly 99% of the students reported they use their computer for social reasons at some point on a typical day. Facebook and text messaging were the most popular socially interactive technologies in the current sample; about 96% and 97% of the students reported they use Facebook and their cell phones to send text messages on a typical day, respectively. MySpace was considerably less popular than its social networking website counterpart Facebook; only 36% of the current sample reported they use MySpace on a typical day. Instant messaging usage was less frequent (64%) than might have been expected based on past research. Past studies (Chung & Nam, 2007; Flanagin, 2005; Lee & Perry, 2004) have reported a range of 71% to 92% diffusion for U.S. college student IM use. Finally, blogging was not as popular as other socially interactive technologies among the college students sampled. About 37% of the students reported they read personal blogs at some point on a typical day and only about 16% of students reported they write personal blogs on a typical day.
Table 3.1

*Frequency of College Students’ Use of Socially Interactive Technologies*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Number of Students who use the medium</th>
<th>Percent</th>
<th>Unit of Measurement</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>363</td>
<td>98.6</td>
<td>Minutes per day</td>
<td>106.16</td>
<td>95.89</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>236</td>
<td>63.6</td>
<td>Minutes per day</td>
<td>53.90</td>
<td>143.10</td>
</tr>
<tr>
<td>Facebook</td>
<td>355</td>
<td>95.6</td>
<td>Minutes per day</td>
<td>92.15</td>
<td>139.95</td>
</tr>
<tr>
<td>MySpace</td>
<td>134</td>
<td>36.1</td>
<td>Minutes per day</td>
<td>13.88</td>
<td>35.70</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>60</td>
<td>16.2</td>
<td>Minutes per day</td>
<td>7.00</td>
<td>42.52</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>137</td>
<td>36.9</td>
<td>Minutes per day</td>
<td>9.50</td>
<td>20.97</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>358</td>
<td>96.5</td>
<td>Texts per day</td>
<td>115.67</td>
<td>169.90</td>
</tr>
</tbody>
</table>
College students in the current sample reported they send and receive an average of about 116 text messages per day. Students in this sample also noted they use their computer for social purposes for about 106 minutes (or just under two hours) per day. Facebook was the most frequently used computer-enabled SIT with students using the website about 92 minutes (or one and a half hours) per day. Again, MySpace was considerably less popular than Facebook, with an average of about 14 minutes of use per day per student. Students reported they use instant messaging for just under an hour per day (54 minutes), while reading and writing blogs both averaged under ten minutes of use per day per student.

Because a number of hypotheses and research questions asked about traditional media use in relation to SIT use, Table 3.2 covers the number of college students in the sample who use each traditional medium, the percentage of college students in this sample that use that medium, and the mean number of minutes each medium is used per day by the students (along with the related standard deviations).

About 98% of the students reported they watch TV on a typical day for an average of 163 minutes (or nearly three hours) per day. This means the students average about an hour and ten minutes more TV viewing per day when compared to communicating on Facebook. Use of the World Wide Web for entertainment and informational purposes was also quite popular at about 96% of the sample using the medium everyday for an average of nearly 100 minutes. Newspapers (including national, local, and school editions) are reportedly read by about 81% of the sample for an average of 19 minutes a day. About 43% of the sample reported they read novels for pleasure on a typical day and 26% of the sample reported they read non-fiction books for pleasure on a typical day. Students also reported many of them read magazines (73%), averaging about 22 minutes with that medium on a typical day.
Table 3.2

*Frequency of College Students’ Use of Traditional Media*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Number of Students who use the medium</th>
<th>Percent</th>
<th>Unit of Measurement</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Wide Web</td>
<td>353</td>
<td>95.9</td>
<td>Minutes per day</td>
<td>97.00</td>
<td>104.15</td>
</tr>
<tr>
<td>Television</td>
<td>365</td>
<td>98.4</td>
<td>Minutes per day</td>
<td>162.85</td>
<td>120.70</td>
</tr>
<tr>
<td>Newspapers</td>
<td>301</td>
<td>81.1</td>
<td>Minutes per day</td>
<td>18.86</td>
<td>26.53</td>
</tr>
<tr>
<td>Magazines</td>
<td>270</td>
<td>72.8</td>
<td>Minutes per day</td>
<td>22.21</td>
<td>36.50</td>
</tr>
<tr>
<td>Novels for Pleasure</td>
<td>161</td>
<td>43.4</td>
<td>Minutes per day</td>
<td>36.66</td>
<td>71.07</td>
</tr>
<tr>
<td>Nonfiction Books for Pleasure</td>
<td>95</td>
<td>25.6</td>
<td>Minutes per day</td>
<td>14.38</td>
<td>45.98</td>
</tr>
</tbody>
</table>
The second research question in Study I asked whether use of SITs would be related in any way to silent, sustained reading (novels, non-fiction books, newspapers) among college students. This research question was examined in three ways. The first examination used Pearson correlations to compare the average number of minutes the students in this sample use socially interactive technologies with the average number of minutes the students read novels, non-fiction books, and newspapers per day. Table 3.3 shows the Pearson $r$ for each medium in relation to each other medium in the form of a correlation matrix.

Table 3.3 reveals there are only a few significant relationships when comparing SIT use with book and newspaper readership. Specifically, newspaper reading was significantly related to Instant Messaging ($r = .14, p \leq .01$), Facebook ($r = .12, p \leq .01$), MySpace ($r = .18, p \leq .01$), and reading blogs ($r = .17, p \leq .01$). Book reading (both non-fiction and novels) was generally unrelated to socially interactive technology use. However, writing blogs was significantly related to reading both non-fiction books ($r = .27, p \leq .01$) and novels ($r = .17, p \leq .01$), while reading blogs was significantly related to reading both non-fiction books ($r = .39, p \leq .01$) and novels ($r = .27, p \leq .01$).

Table 3.3 is also useful as a means to examine whether socially interactive technologies are related to each other, as previous literature suggests. A series of significant positive correlations reveal that indeed socially interactive technologies are generally related to each other in terms of frequency of use among college students. For example, minutes using Facebook per day was significantly related to minutes using MySpace ($r = .11, p \leq .05$), minutes writing blogs ($r = .37, p \leq .01$), minutes reading blogs ($r = .30, p \leq .01$), number of text messages sent and received per day ($r = .26, p \leq .01$), and minutes using IM ($r = .24, p \leq .01$). A significant
Table 3.3

*Pearson Correlations Between Minutes per day Using SITs and Minutes per day Spent Reading*

<table>
<thead>
<tr>
<th>Medium</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Computer for Social Reasons</td>
<td>—</td>
<td>.35**</td>
<td>.47**</td>
<td>.22**</td>
<td>.02</td>
<td>.19**</td>
<td>.21**</td>
<td>.05</td>
<td>.09</td>
<td>.10</td>
</tr>
<tr>
<td>2. Instant Messaging</td>
<td>—</td>
<td>.24**</td>
<td>.11*</td>
<td>.03</td>
<td>.08</td>
<td>.09</td>
<td>.02</td>
<td>-.01</td>
<td>.14**</td>
<td></td>
</tr>
<tr>
<td>3. Facebook</td>
<td>—</td>
<td>.11*</td>
<td>.37**</td>
<td>.24**</td>
<td>.26**</td>
<td>.00</td>
<td>.00</td>
<td>.12**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. MySpace</td>
<td>—</td>
<td>.25**</td>
<td>.32**</td>
<td>.30**</td>
<td>.16**</td>
<td>.10</td>
<td>.18**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Writing Blogs</td>
<td>—</td>
<td>.56**</td>
<td>.20**</td>
<td>.27**</td>
<td>.17**</td>
<td>.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Reading Blogs</td>
<td>—</td>
<td>.04</td>
<td>.39**</td>
<td>.27**</td>
<td>.17**</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Text Messaging</td>
<td>—</td>
<td>-.09</td>
<td>-.04</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Non-fiction Books</td>
<td>—</td>
<td>.65**</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Novels</td>
<td>—</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Newspapers</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
relationship was also found between minutes using Facebook per day and minutes using one’s computer for social reasons ($r = .47, p \leq .01$).

Looking at the coefficient of determination, or the $r^2$, can help clarify the strength of the association between Facebook and the students’ general use of their computers for social reasons. When the Pearson $r$ value (.652) is squared ($r^2 = 0.219$), it is revealed that 21.9% of the variance in students’ use of their computers for social reasons can be explained by how much a student uses Facebook. According to Hayes (2005), this $r^2$ value suggests the relationship between Facebook and social computer use is a weak to moderate relationship, as an $r^2$ value of about .10 (10%) signifies a weak association, an $r^2$ value of .25 signifies a moderate association, and an $r^2$ of .50 or higher signifies a strong association. Hayes cautions these cut off points are an oversimplification of more statistically complicated and multidimensional realities and what one researcher views as “weak” another might view as “moderate” depending on the practical application of the data and what type of associations are being measured. On the other hand, the coefficient of determination is frequently used in communication research because of the ease with which it can be calculated and interpreted; therefore it will be called upon from time to time throughout the remainder of this project.

The second examination of the second research question used Spearman correlations to look at relationships between SIT use and reading with a series of ordinal variables that allowed college students to compare their media use frequency with other college students’. Table 3.4 shows the Spearman $r$ for each medium in relation to each other medium in the form of a correlation matrix. Table 3.4 reveals that, although reading is generally unrelated to SIT use, a number of salient and significant relationships emerged when using the five-point Likert-type scales asking students to compare their media use with other college students’. Unlike in the first
examination of this research question, no significant relationships between newspaper readership and SIT use emerged, except for reading blogs ($r = .24, p \leq .01$). Once again, a series of significant relationships between blogging (both reading and writing) and book reading (both novels and non-fiction books) materialized in a positive direction, suggesting college students who tend to blog also tend to read books. By correlating the “compared” variables, it was also revealed that text messaging was significantly negatively related to reading non-fiction books ($r = -.16, p \leq .01$) and novels ($r = -.13, p \leq .05$). Although these Spearman $r$ values are relatively small, these results suggest an inverse relationship between frequency of text messaging and frequency of book reading.

As with Table 3.3, Table 3.4 is useful as a way to examine whether socially interactive technologies are related to each other in terms of relative frequency of use. A series of significant positive relationships once again reveal that indeed socially interactive technologies are generally related to each other. For example, instant messaging was significantly related to Facebook ($r = .32, p \leq .01$), MySpace ($r = .20, p \leq .01$), and reading blogs ($r = .11, p \leq .05$). A significant relationship was also found between Facebook and using computer for social reasons ($r = .68, p \leq .01$).

The third examination of the second research question used Spearman correlations to look at relationships between SIT use and reading by calling upon a series of ordinal “liking” variables, which asked students to rate how much they liked a given medium on a five-point Likert-type scale that ranged from “I hate it” to “I love it”. Table 3.5 shows the Spearman $r$ for each medium in relation to each other medium in the form of a correlation matrix.
<table>
<thead>
<tr>
<th>Medium</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Computer for Social Reasons</td>
<td>—</td>
<td>.45**</td>
<td>.68**</td>
<td>.20**</td>
<td>.00</td>
<td>.05</td>
<td>.24**</td>
<td>-.04</td>
<td>-.08</td>
<td>-.09</td>
</tr>
<tr>
<td>2. Instant Messaging</td>
<td>—</td>
<td>.32**</td>
<td>.20*</td>
<td>.08</td>
<td>.12*</td>
<td>.07</td>
<td>.07</td>
<td>.01</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>3. Facebook</td>
<td>—</td>
<td>.15*</td>
<td>-.01</td>
<td>.05</td>
<td>.30**</td>
<td>-.09</td>
<td>-.07</td>
<td>-.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. MySpace</td>
<td>—</td>
<td>.23**</td>
<td>.25**</td>
<td>.08</td>
<td>.11**</td>
<td>.13*</td>
<td>-.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Writing Blogs</td>
<td>—</td>
<td>.60**</td>
<td>-.11*</td>
<td>.21**</td>
<td>.17**</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Reading Blogs</td>
<td>—</td>
<td>.06</td>
<td>.19**</td>
<td>.20**</td>
<td>.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Text Messaging</td>
<td>—</td>
<td>-.16**</td>
<td>-.13*</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8. Non-fiction Books</td>
<td>—</td>
<td>.62**</td>
<td>.23**</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>9. Novels</td>
<td>—</td>
<td>.24</td>
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<tr>
<td>10. Newspapers</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
Table 3.5 reveals that, although reading is generally unrelated to SIT use, a number of salient and significant relationships emerge when using the five-point “liking” scales. For example, a significant correlation was found between Facebook and text messaging \((r = .41, p \leq .01)\), which are the two most popular SITs among students in this study. Once again, a series of significant relationships between blogging (both reading and writing) and book reading (both novels and non-fiction books) also materialized. This finding lends further credence to the notion that college students who tend to blog also tend to read books.

Table 3.5 shows a series of significant positive relationships between SITs, which further support the notion that it is appropriate to group socially interactive technologies together under that name. For example, in addition to relating positively to text messaging, liking Facebook was positively significantly related to liking instant messaging \((r = .31, p \leq .01)\).

In short, the results from the second research question reveal that other than blogging, college students’ socially interactive technology use is largely unrelated (positively or negatively) to college student reading rates and that socially interactive technologies are generally positively related to one another in terms of college students’ usage rates as well as college students’ affinity for those technologies.

The third research question in Study I asked whether there would be a relationship between SIT use and college grade point average (GPA). This research question was examined in three ways; all three examinations are presented in Table 3.6. The first examination used Pearson correlations to look at the average number of minutes students use socially interactive technologies in conjunction with the GPA they reported on their questionnaires.

Both Facebook usage and text messaging were significantly negatively related to college GPA across all three modes of inquiry (Minutes, Compared, Liking). Despite the weakness of
### Table 3.5

**Spearman Correlations Between Liking SITs and Liking Reading**

<table>
<thead>
<tr>
<th>Medium</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instant Messaging</td>
<td>—</td>
<td>.31**</td>
<td>.24**</td>
<td>.12*</td>
<td>.14**</td>
<td>.22**</td>
<td>.03</td>
<td>-.02</td>
<td>.00</td>
</tr>
<tr>
<td>2. Facebook</td>
<td>—</td>
<td>.13*</td>
<td>-.01</td>
<td>.00</td>
<td>.41**</td>
<td>-.03</td>
<td>.00</td>
<td>-.11*</td>
<td></td>
</tr>
<tr>
<td>3. MySpace</td>
<td>—</td>
<td>.19**</td>
<td>.20**</td>
<td>.12**</td>
<td>-.09</td>
<td>.01</td>
<td>-.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Writing Blogs</td>
<td>—</td>
<td>.72**</td>
<td>-.02</td>
<td>.23**</td>
<td>.19**</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Reading Blogs</td>
<td>—</td>
<td>-.01</td>
<td>.22**</td>
<td>.19**</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Text Messaging</td>
<td>—</td>
<td>-.09</td>
<td>-.04</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Non-fiction Books</td>
<td>—</td>
<td>.54**</td>
<td>.22**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Novels</td>
<td>—</td>
<td>.15**</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>9. Newspapers</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
the individual relationships in terms of size of the Pearson $r$, $r^2$, and Spearman $r$, the consistency across measures suggests a relationship of some kind does exist in this sample. Specifically, lower GPAs are related to higher Facebook frequency rates and higher likelihood of text messaging, while higher GPAs are related to lower Facebook use and lower text messaging rates. By converting the Pearson $r$ (-.207) to a coefficient of determination ($r^2 = 0.042$), it appears the association between daily text messaging frequency and GPA, although statistically significant, is a weak relationship, explaining only about 4.2% of the variance. The size of this association makes intuitive sense, however, as it is likely many internal and external factors in addition to media use combine to formulate a students’ GPA. The current Pearson $r$ and coefficient of determination suggest text messaging frequency is a small yet still significant contributor to college GPA.

Table 3.6 also shows two significant negative relationships between general use of one’s computer for social reasons and college GPA (there was no “liking” variable that asked about computing for social reasons). Additionally, MySpace was significantly negatively related to college GPA when using the “minutes per day” variable ($r = -.15, p \leq .01$) and the “compared” variable ($r = -.13, p \leq .05$). Blogging once again distinguished itself from the other SITs by being the only interactive medium to show any signs of a positive relationship with college GPA. Although the significant correlations materialized in only one of the three ways used to study these phenomena, liking to write blogs ($r = .15, p \leq .01$) and liking to read blogs ($r = .13, p \leq .01$) were both positively related to students’ GPAs. In this sense, an increased preference for blogging is related to higher college grade point averages. Looking at all the results used to answer the third research question, a consistent series of significant negative relationships
Table 3.6

Correlations Between SIT Use and College Grade Point Average

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation GPA/Minutes per day</th>
<th>Spearman Correlation GPA/Compared</th>
<th>Spearman Correlation GPA/Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>-.18**</td>
<td>-.12*</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.05</td>
<td>.00</td>
<td>.03</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.15**</td>
<td>-.17**</td>
<td>-.12*</td>
</tr>
<tr>
<td>MySpace</td>
<td>-.15**</td>
<td>-.13*</td>
<td>-.04</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.06</td>
<td>.06</td>
<td>.15**</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.06</td>
<td>.03</td>
<td>.13**</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>-.21**</td>
<td>-.23**</td>
<td>-.16*</td>
</tr>
</tbody>
</table>

* *p ≤ .05, **p ≤ .01
between SIT use (except perhaps, blogging) and college GPA emerged, revealing that SIT use and college GPA are inversely related.

The first hypothesis in the first study predicted there would be a *positive* relationship between need for cognition and book reading among college students. Similarly, the second hypothesis in the first study predicted there would be a *negative* relationship between need for cognition and television viewing among college students. While these tests do not directly deal with socially interactive technologies, they are useful here to act as an internal validity check, as previous research has found these relationships to occur in these directions. In this sense, these two hypotheses are useful to understand whether the need for cognition (NFC) scale (and the other three predisposition scales) and the three ways implemented to measure media use are indeed measuring what was intended to be measured and that these scales and variables are performing statistically in predictable and precedential ways. Table 3.7 covers the results from both Hypothesis 1 and Hypothesis 2.

Table 3.7 shows both Hypothesis 1 and Hypothesis 2 were supported. In terms of Hypothesis 1, need for cognition was positively related to reading non-fiction books across all three ways to measure the behavior. Looking at the coefficient of determination between novel reading and NFC ($r^2 = 0.052$), it appears the relationship is at best quite weak, explaining about 5.2% of the variance on the NFC scale. Despite the relative weakness of the associations, NFC was positively related to reading novels across all three ways to measure the phenomena. Regarding Hypothesis 2, NFC was significantly negatively related to television viewing, regardless of the variable used to measure TV viewing habits. Although the relationships were statistically weak, the significant results from both hypotheses lend support to the idea that the
Table 3.7

*Correlations Between Need For Cognition, Book Reading, and Television Viewing*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation NFC/Minutes per day</th>
<th>Spearman Correlation NFC/Compared</th>
<th>Spearman Correlation NFC/Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-fiction Books</td>
<td>.19**</td>
<td>.21**</td>
<td>.26**</td>
</tr>
<tr>
<td>Novels</td>
<td>.23**</td>
<td>.26**</td>
<td>.29**</td>
</tr>
<tr>
<td>Television</td>
<td>-.14**</td>
<td>-.19**</td>
<td>-.14**</td>
</tr>
</tbody>
</table>

**p ≤ .01**
NFC scale and the three ways to measure media use are related to each other in established and predictable directions.

The fourth research question in Study I asked whether there would be a relationship between SIT use and need for cognition (NFC). This research question was examined in three ways; all three examinations are presented in Table 3.8. The first examination used Pearson correlations to look at the average number of minutes students use SITs in conjunction with each students’ relative rank on the NFC scale. The second and third examinations called upon Spearman correlations to examine the relationships between the series of “compared” variables and the series of “liking” variables in relation to the students’ relative rank on the NFC scale.

The results for Research Question 4, as covered in Table 3.8, reveal that out of a possible 20 relationships, 4 emerged as significant. Once again blogging appears to be a unique behavior when compared to other SITs. Using the “liking” variables, NFC was positively related to writing blogs ($r = .11, p \leq .05$) and reading blogs ($r = .12, p \leq .05$), suggesting that blogging is related to higher levels of need for cognition among the college students in this study. At the same time, when using the “compared” variables, NFC was negatively related to use of one’s computer for social reasons ($r = -.16, p \leq .01$) and Facebook ($r = -.15, p \leq .01$), suggesting Facebook and use of a computer for social reasons are related to lower levels of need for cognition among college students in this study.

The fifth research question in Study I asked whether there would be a relationship between SIT use and cognitive flexibility (CF). This research question was examined in the same way the previous research question was examined (with three separate correlation-based tests using the three ways to measure media use). Results from Research Question 5 are presented in Table 3.9. As with the NFC scale, significant results from correlating students’ relative rank on
Table 3.8

**Correlations Between Need For Cognition (NFC) and SIT Use**

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation NFC/Minutes per day</th>
<th>Spearman Correlation NFC/Compared</th>
<th>Spearman Correlation NFC/Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.00</td>
<td>-.16**</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.00</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.05</td>
<td>-.15**</td>
<td>-.04</td>
</tr>
<tr>
<td>MySpace</td>
<td>.08</td>
<td>.10</td>
<td>.06</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.02</td>
<td>.08</td>
<td>.11*</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.04</td>
<td>.06</td>
<td>.12*</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.04</td>
<td>.02</td>
<td>-.01</td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
# Table 3.9

**Correlations Between Cognitive Flexibility (CF) and SIT Use**

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation CF/Minutes per day</th>
<th>Spearman Correlation CF/Compared</th>
<th>Spearman Correlation CF/Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>-.01</td>
<td>-.13*</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.02</td>
<td>-.03</td>
<td>.00</td>
</tr>
<tr>
<td>Facebook</td>
<td>.01</td>
<td>-.09</td>
<td>.02</td>
</tr>
<tr>
<td>MySpace</td>
<td>.00</td>
<td>.05</td>
<td>.01</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.06</td>
<td>.00</td>
<td>.11*</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.01</td>
<td>.01</td>
<td>.13*</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.08</td>
<td>.05</td>
<td>.05</td>
</tr>
</tbody>
</table>

* *p ≤ .05*
the CF scale with SIT use were not frequent nor were they particularly robust; three weak significant relationships emerged during this inquiry. That said, what did emerge was consistent with the findings from the previous research question, which also looked at the relationships between varying levels of cognition in terms of varying levels of social media use. First, using the “compared” variables, CF was negatively related to use of one’s computer for social reasons ($r = -.13, p \leq .05$). This result suggests relatively frequent use of one’s computer for social reasons is significantly related to lower levels of cognitive flexibility among the college students in this study. Second, as with NFC, use of the “liking” variables revealed CF was weakly but positively related to writing blogs ($r = .11, p \leq .05$) and reading blogs ($r = .13, p \leq .05$). This result suggests blogging is related to higher levels of cognitive flexibility among the college students in this study and once again points to the unique position blogging holds in the socially interactive technology milieu.

The sixth research question in Study I asked whether there would be a relationship between SIT use and communicative adaptability (CA). This research question was examined in the same way the previous two research questions were examined. Results from Research Question 6 are presented in Table 3.10. While the previous two research questions deal with the communication in relation to cognition, this question and the following one both deal with the social elements related to being able to communicate effectively across a range of situations.

Out of a possible 20 relationships, one emerged as a significant relationship. As with the previous two research questions, when using the “compared” variables CA was negatively related to use of one’s computer for social reasons ($r = -.13, p \leq .05$). This result suggests relatively frequent use of one’s computer for social reasons is significantly related to lower levels of communicative adaptability among the college students in this study. The almost complete
Table 3.10

**Correlations Between Communicative Adaptability (CA) and SIT Use**

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA/Minutes per day</td>
<td>CA/Compared</td>
<td>CA/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>-.03</td>
<td>-.13*</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.01</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.03</td>
<td>-.08</td>
<td>.00</td>
</tr>
<tr>
<td>MySpace</td>
<td>.05</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.04</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.03</td>
<td>.10</td>
<td>.10</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>-.01</td>
<td>.04</td>
<td>.05</td>
</tr>
</tbody>
</table>

*p ≤ .05
lack of significant relationships when looking at communicative adaptability in association with SIT use, however, seems to more accurately suggest that, at least with this sample of college students, communicative adaptability is not related to how frequently people use SITs or how much they enjoy using SITs.

The seventh research question in Study I asked whether there would be a relationship between SIT use and conversational sensitivity (CS). This research question was examined in the same way the previous three research questions were examined. Results from Research Question 7 are presented in Table 3.11, which shows that MySpace is significantly negatively related to conversational sensitivity across all three ways to measure media use. The consistency of this finding, despite the statistical weakness of the relationships, suggests people who use MySpace more often tend to be less conversationally sensitive relative than those that use MySpace less often. The only other significant relationship that emerged when looking at CS in relation to SIT use was a significant negative correlation between reading blogs and conversational sensitivity ($r = -.11, p \leq .05$). This result connotes a relationship might exist between how much a person likes reading blogs and that persons’ relative level of sensitivity when engaging in conversations.

**Study II**

The first research question in the second study asked whether college students’ reported SIT use from the questionnaire in the first study would be related to the inclusion of language typical of SITs when writing two formal messages in the second study. This question was examined in three ways (overall score in relation to SIT use, score on the letter of interest in relation to SIT use, and score on the email to the professor in relation to SIT use). The first part of the first examination used Pearson correlations to compare the students’ overall score
Table 3.11

*Correlations Between Conversational Sensitivity (CS) and SIT Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation CS/Minutes per day</th>
<th>Spearman Correlation CS/Compared</th>
<th>Spearman Correlation CS/Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>-.08</td>
<td>.06</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.02</td>
<td>-.02</td>
<td>-.01</td>
</tr>
<tr>
<td>Facebook</td>
<td>.05</td>
<td>.05</td>
<td>-.04</td>
</tr>
<tr>
<td>MySpace</td>
<td>-.10*</td>
<td>-.11*</td>
<td>-.13*</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.01</td>
<td>-.05</td>
<td>-.06</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.09</td>
<td>-.06</td>
<td>-.11*</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>-.01</td>
<td>-.09</td>
<td>-.04</td>
</tr>
</tbody>
</table>

*p ≤ .05
with the average number of minutes the students reported they use socially interactive
technologies per day. The second and third parts of the first examination called upon Spearman
correlations to examine the relationships between the series of “compared” variables and the
series of “liking” variables students answered on the questionnaire with their overall scores.

The results from all three examinations are covered in Table 3.12. Please note that higher
overall scores denote an increase in language typical of SITs on the writing tasks. In this sense, a
positive correlation suggests as use of a given medium increases, so too does the overall score
(or vice-versa).

Using a cell phone to send text messages was the only socially interactive technology that
was significantly related to students’ overall score. A significant positive correlation between the
number of text messages a student sends and receives and their overall score emerged ($r = .29, p
\leq .05$). Looking at the coefficient of determination between text messaging and students’ overall
writing score ($r^2 = 0.085$), it appears there is a weak association between the two variables,
wherein text messaging frequency can explain about 8.5% of the students’ variance on the
overall writing score. Additionally, a second significant positive correlation between the
students’ comparative text messaging frequency and their overall score also materialized ($r = .26, p
\leq .05$). More frequent text messaging relative to other college students, then, is related to
higher overall scores on the two writing tasks, which means text messaging use is related to an
increased use of language typical of SITs but perhaps less appropriate for more formal written
discourse.

The second examination of the first research question used Pearson correlations to
compare the students’ score on the letter of interest with the average number of minutes the
students reported they use socially interactive technologies per day. The second examination
Table 3.12

*Correlations Between Overall Score and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.15</td>
<td>.17</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.06</td>
<td>.15</td>
<td>.24</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.02</td>
<td>.00</td>
<td>.20</td>
</tr>
<tr>
<td>MySpace</td>
<td>.17</td>
<td>.21</td>
<td>.24</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.11</td>
<td>-.04</td>
<td>-.07</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.05</td>
<td>.02</td>
<td>-.01</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.29*</td>
<td>.26*</td>
<td>.24</td>
</tr>
</tbody>
</table>

*p ≤ .05*
also called upon Spearman correlations to investigate the relationships between the series of “compared” variables and the series of “liking” variables with the students’ scores on the letters. Results from the second examination of the first research question are reported in Table 3.13. Looking only at the scores on the letter, text messaging once again emerged as the lone SIT related to writing performance while in the computer lab. A significant positive correlation between the number of text messages a student sends and receives and their score on the letter emerged \( (r = .32, p \leq .05) \). After calculating the coefficient of determination between text messaging frequency and the students’ scores on the letters \( (r^2 = 0.104) \), it is revealed that there is a weak association between the two variables. Text messaging frequency can be used to explain about 10.4\% of the students’ variance on the writing score on the letter. Additionally, a second positive significant correlation between the students’ comparative text messaging frequency and their score on the letter also materialized \( (r = .26, p \leq .05) \). More frequent text messaging, then, is related to a higher overall score on the letter and an increased use of language typical of SITs but perhaps less appropriate for a business letter written to a potential employer.

The third examination of the first research question in the second study called upon the same three ways to measure interactive media practices used in the first two examinations (Pearson and the “minutes per day” variables, Spearman and the “compared” variables, and Spearman and the “liking” variables) in relation to overall performance on only the email to the professor. Results from the third examination of the first research question are reported in Table 3.14. The frequency with which students use a computer for social purposes as compared to other college students was significantly positively related to the students’ writing score on the email \( (r = .27, p \leq .05) \). This relationship suggests that students who reported that they use their
Table 3.13

*Correlations Between Score on the Letter and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.11</td>
<td>.11</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.02</td>
<td>.06</td>
<td>.11</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.02</td>
<td>-.06</td>
<td>.13</td>
</tr>
<tr>
<td>MySpace</td>
<td>.17</td>
<td>.19</td>
<td>.21</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.03</td>
<td>-.12</td>
<td>-.20</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.13</td>
<td>-.09</td>
<td>-.14</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.32*</td>
<td>.26*</td>
<td>.24</td>
</tr>
</tbody>
</table>

*p ≤ .05*
Table 3.14

**Correlations Between Score on the Email and Socially Interactive Technology Use**

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Email Score/Mi nutes per day</td>
<td>Email Score/Compared</td>
<td>Email Score/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>.21</td>
<td>.27*</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.15</td>
<td>.26*</td>
<td>.35**</td>
</tr>
<tr>
<td>Facebook</td>
<td>.03</td>
<td>.12</td>
<td>.22</td>
</tr>
<tr>
<td>MySpace</td>
<td>.15</td>
<td>.18</td>
<td>.19</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.21</td>
<td>.11</td>
<td>.15</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.10</td>
<td>.10</td>
<td>.19</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.19</td>
<td>.18</td>
<td>.18</td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
computer for social reasons more than other students also tended to deploy an increased use of language typical of SITs. Furthermore, instant messaging was positively related to writing performance on the email when using the “compared” variable \( r = .26, p \leq .05 \) and the “liking” variable \( r = .35, p \leq .01 \). In this study, increased relative instant messaging use and an increased affinity for the medium were both related to increased use of language typical of SITs (in terms of formalness and formatting, SIT-like orthography, and grammar) in the email to the professor.

Research question 1a asked whether students’ reported SIT usage patterns from the first study would be related to the formalness and formatting score they received on both the letter of interest and the email written to the professor. Table 3.15 shows the results from the Pearson and Spearman correlations that investigated the possible relationships between the combined formalness and formatting score. The number of minutes students reported using a computer for social purposes was significantly positively related to the students’ formalness score across both the email and the letter \( r = .27, p \leq .05 \). Additionally, the number of minutes students reported using instant messaging was significantly positively related to the students’ formalness score across both writing tasks \( r = .28, p \leq .05 \). After calculating the coefficient of determination between instant messaging frequency and the students’ combined formalness scores \( r^2 = 0.078 \), it is revealed there is a weak association between the two variables. Instant messaging frequency can be used to explain about 7.8% of the students’ variance on the formalness scores. In both cases, increased use of socially interactive computer applications was significantly related to decreased success in formatting two formal documents while working in the computer lab.

Table 3.16 covers the relationships between SIT use and the number of formalness and formatting mistakes students made on the letter of interest alone. There were no significant relationships between SIT use and formatting the letter.
Table 3.15

Correlations Between Combined Formalness Score and Socially Interactive Technology Use

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formalness Combined/Minutes</td>
<td>Formalness Combined/Compared</td>
<td>Formalness Combined/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>.27*</td>
<td>.05</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.28*</td>
<td>.03</td>
<td>.15</td>
</tr>
<tr>
<td>Facebook</td>
<td>.10</td>
<td>-.11</td>
<td>.05</td>
</tr>
<tr>
<td>MySpace</td>
<td>.16</td>
<td>.11</td>
<td>.10</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.16</td>
<td>.02</td>
<td>.04</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.07</td>
<td>.07</td>
<td>.02</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.23</td>
<td>.06</td>
<td>.17</td>
</tr>
<tr>
<td>Non-fiction Books</td>
<td>-.07</td>
<td>-.37**</td>
<td>-.21</td>
</tr>
<tr>
<td>Novels</td>
<td>-.04</td>
<td>-.33*</td>
<td>-.21</td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
Table 3.16

*Correlations Between Formalness Score on the Letter and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.21</td>
<td>-.03</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.18</td>
<td>-.02</td>
<td>.02</td>
</tr>
<tr>
<td>Facebook</td>
<td>.07</td>
<td>-.16</td>
<td>-.08</td>
</tr>
<tr>
<td>MySpace</td>
<td>.13</td>
<td>.08</td>
<td>.11</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.15</td>
<td>-.03</td>
<td>-.06</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.02</td>
<td>.00</td>
<td>-.11</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.23</td>
<td>.05</td>
<td>.06</td>
</tr>
</tbody>
</table>
Table 3.17 shows the relationships between SIT use in association with the number of formalness and formatting mistakes students made in writing the email to the professor. Instant messaging was the only SIT that showed a significant relationship to appropriate formatting of the email. Daily instant messaging frequency was significantly positively related to the formalness and formatting scores students received on the emails ($r = .33, p \leq .01$). Using the coefficient of determination ($r^2 = 0.112$) reveals about 11.2% of the variance on the students’ formalness score on the email can be explained by their daily IM use, suggesting a weak relationship between the two variables. How much students said they enjoy using instant messaging was also significantly positively related to the formatting scores on the emails ($r = .27, p \leq .05$). Here, frequent use of IM programs as well as enjoying the use of those programs was associated with the decreased formatting techniques and use of formal language when writing an email to a professor.

Research question 1b asked whether students’ reported SIT usage patterns from the first study would be related to the inclusion of the kind of orthographic language typical of SITs in both the letter of interest and the email written to the professor. It is important to note, as can be seen in Table 3.18, that instances of a unique SIT orthography were relatively infrequent in this study. Students completely avoided inappropriate inclusion of emoticons and reduplicated letters and rarely used inappropriate punctuation to signify conversation breaks or particularly informal or inappropriate abbreviations. There were, however, 336 total instances of SIT-like language usage in the letter and email. While some of the most obvious and well-documented SIT orthographic techniques were not commonly used in the two writing tasks, other considerations did materialize and warrant further analysis in the form of a series of correlation tests used to
Table 3.17

*Correlations Between Formalness Score on the Email and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formalness Email/Minutes per day</td>
<td>Formalness Email/Compared</td>
<td>Formalness Email/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>.25</td>
<td>.17</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.33**</td>
<td>.10</td>
<td>.27*</td>
</tr>
<tr>
<td>Facebook</td>
<td>.11</td>
<td>.05</td>
<td>.16</td>
</tr>
<tr>
<td>MySpace</td>
<td>.14</td>
<td>.11</td>
<td>.05</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.10</td>
<td>.11</td>
<td>.19</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.14</td>
<td>.16</td>
<td>.23</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.11</td>
<td>.06</td>
<td>.17</td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01*
Table 3.18

*Frequency of SIT-Like Language Usages in the Writing Tasks*

<table>
<thead>
<tr>
<th>SIT-Like Language Usage</th>
<th>Total (Letter and Email)</th>
<th>Letter Only</th>
<th>Email Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviations</td>
<td>16</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Contractions</td>
<td>42</td>
<td>18</td>
<td>24</td>
</tr>
<tr>
<td>Emoticons</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inappropriate Capitalization</td>
<td>93</td>
<td>69</td>
<td>24</td>
</tr>
<tr>
<td>Inappropriate Conversation Breaks</td>
<td>8</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Inappropriate Use of Symbols</td>
<td>39</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Informal Word Choice</td>
<td>65</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Reduplicated Letter</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Speech-Like Writing</td>
<td>40</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Words Left Out</td>
<td>33</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td>Total SIT-Like Usages</td>
<td>336</td>
<td>190</td>
<td>146</td>
</tr>
</tbody>
</table>
answer the proposed research question. Table 3.19 covers the results from the Pearson and Spearman correlations that investigated the possible relationships between the combined SIT score (letter and email) and SIT usage.

Two significant relationships emerged between SIT usage and the inclusion of SIT-related orthographic techniques. First, whether a student liked or disliked Facebook was significantly positively related to their combined SIT score ($r = .26, p \leq .05$). In this sample, as affinity for Facebook decreased, the inclusion of SIT-related orthographic devices also tended to decrease. Second, the comparative frequency with which college students send and receive text messages was significantly positively related to their SIT score ($r = .26, p \leq .05$). In this sample, as relative text messaging frequency decreased, the inclusion of SIT-related orthographic devices also tended to decrease.

Tables 3.20 and 3.21 cover the data that look at the relationships between students’ socially interactive technology use and the inclusion of an SIT orthography in the letter alone and the email alone, respectively. Once again, frequency of text messaging as compared to other college students was significantly and positively related to the inclusion of an SIT orthography in the letter ($r = .29, p \leq .05$).

Table 3.21 shows that daily blog writing frequency ($r = .27, p \leq .05$) and liking to write blogs ($r = .27, p \leq .05$) were both positively related to the inclusion of a writing style typical of SITs but perhaps less appropriate in a formal email to a professor. Using the coefficient of determination ($r^2 = 0.075$) reveals that about 7.5% of the variance on the students’ SIT score on the email can be explained by their daily tendency to write blogs, suggesting a weak relationship between the two variables. For the first time in Study II, results revealed that writing blogs is related to an increased use of language typical of socially interactive technologies.
Table 3.19

*Correlations Between Combined SIT Score and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.06</td>
<td>.22</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.04</td>
<td>.17</td>
<td>.24</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.04</td>
<td>.18</td>
<td>.26*</td>
</tr>
<tr>
<td>MySpace</td>
<td>.13</td>
<td>.18</td>
<td>.18</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.11</td>
<td>-.05</td>
<td>.02</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.04</td>
<td>-.07</td>
<td>.08</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.20</td>
<td>.26*</td>
<td>.22</td>
</tr>
</tbody>
</table>

*p ≤ .05*
Table 3.20

*Correlations Between SIT Score on the Letter and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.04</td>
<td>.18</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.09</td>
<td>.15</td>
<td>.14</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.03</td>
<td>.18</td>
<td>.24</td>
</tr>
<tr>
<td>MySpace</td>
<td>.14</td>
<td>.16</td>
<td>.12</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.03</td>
<td>-.25</td>
<td>-.23</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.09</td>
<td>-.17</td>
<td>-.04</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.12</td>
<td>.29*</td>
<td>.24</td>
</tr>
</tbody>
</table>

*p ≤ .05*
Table 3.21

*Correlations Between SIT Score on the Email and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SIT Email/Minutes per day</td>
<td>SIT Email/Compared</td>
<td>SIT Email/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>.08</td>
<td>.21</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.09</td>
<td>.15</td>
<td>.25</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.04</td>
<td>.15</td>
<td>.19</td>
</tr>
<tr>
<td>MySpace</td>
<td>.10</td>
<td>.13</td>
<td>.20</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>.27*</td>
<td>.18</td>
<td>.27*</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.05</td>
<td>.04</td>
<td>.18</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.12</td>
<td>.11</td>
<td>.12</td>
</tr>
</tbody>
</table>

*\(p \leq .05\)
Research question 1c asked whether students’ reported SIT usage patterns from the first study would be related to the inclusion of grammatical mistakes in both the letter of interest and the email written to the professor. Table 3.22 outlines the results from the Pearson and Spearman correlation tests used to answer this research question in relation to the combined grammar score across the email and the letter. College students’ blog writing frequency (as compared to other college students) was significantly negatively related to the combined grammar score ($r = -.25, p \leq .05$), as was liking writing blogs ($r = -.29, p \leq .05$). This relationship materialized in the opposite direction when compared to writing blogs’ relationship with the inclusion of an SIT-like orthography (in the previous research question). In this study, blog writing is associated with increased inclusion of the informal language typical of SITs but is conversely associated with decreased grammatical mistakes in formal writing contexts.

Tables 3.23 and 3.24 cover the data that looks at the relationships between students’ socially interactive technology use and the inclusion of grammatical errors in the letter alone and the email alone, respectively. When the grammar score on the letter was separated from the grammar score on the email, it was revealed that the relationship between writing blogs and grammatical errors is significant in the letter (Table 3.24) but not the email (Table 3.25). The current college students’ blog writing frequency (as compared to other college students) was significantly negatively related to the grammar score on the letter ($r = -.26, p \leq .05$) as was liking writing blogs ($r = -.29, p \leq .05$) but this relationship was not maintained when looking at the grammar scores on the email.
Table 3.22

*Correlations Between Combined Grammar Score and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grammar Combined/Minutes</td>
<td>Grammar Combined/Compared</td>
<td>Grammar Combined/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>-.11</td>
<td>.11</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.00</td>
<td>.15</td>
<td>.12</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.05</td>
<td>.03</td>
<td>.09</td>
</tr>
<tr>
<td>MySpace</td>
<td>.08</td>
<td>.07</td>
<td>.06</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.12</td>
<td>-.25*</td>
<td>-.29*</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.10</td>
<td>-.18</td>
<td>-.19</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.30*</td>
<td>.26*</td>
<td>-.10</td>
</tr>
</tbody>
</table>

*p ≤ .05
Table 3.23

*Correlations Between Grammar Score on the Letter and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grammar Letter/Minutes per day</td>
<td>Grammar Letter/Compared</td>
<td>Grammar Letter/Liking</td>
</tr>
<tr>
<td>Computer for social reasons</td>
<td>-.24</td>
<td>.06</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>-.06</td>
<td>.11</td>
<td>.04</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.11</td>
<td>.06</td>
<td>.10</td>
</tr>
<tr>
<td>MySpace</td>
<td>.06</td>
<td>.07</td>
<td>.05</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.18</td>
<td>-.26*</td>
<td>-.29*</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>-.20</td>
<td>-.25</td>
<td>-.21</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.29*</td>
<td>.25</td>
<td>.16</td>
</tr>
</tbody>
</table>

*p ≤ .05
Table 3.24

*Correlations Between Grammar Score on the Email and Socially Interactive Technology Use*

<table>
<thead>
<tr>
<th>Medium</th>
<th>Pearson Correlation</th>
<th>Spearman Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer for social reasons</td>
<td>.02</td>
<td>.14</td>
<td>—</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>.05</td>
<td>.15</td>
<td>.17</td>
</tr>
<tr>
<td>Facebook</td>
<td>.04</td>
<td>.01</td>
<td>.08</td>
</tr>
<tr>
<td>MySpace</td>
<td>.13</td>
<td>.11</td>
<td>.08</td>
</tr>
<tr>
<td>Writing Blogs</td>
<td>-.02</td>
<td>-.17</td>
<td>-.23</td>
</tr>
<tr>
<td>Reading Blogs</td>
<td>.02</td>
<td>-.07</td>
<td>-.11</td>
</tr>
<tr>
<td>Text Messaging (sent and received)</td>
<td>.27*</td>
<td>.24</td>
<td>.06</td>
</tr>
<tr>
<td>Non-fiction Books</td>
<td>-.07</td>
<td>-.11</td>
<td>-.08</td>
</tr>
<tr>
<td>Novels</td>
<td>-.21</td>
<td>-.23</td>
<td>-.29*</td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01
Table 3.24 shows that the number of text messages students’ reportedly send and receive on a typical day was significantly positively related to the inclusion of grammar mistakes on the email ($r = .27, p \leq .05$). No other SIT was related to the inclusion of grammatical errors when students’ wrote the formal emails to the professor.

Moving to the hypotheses advanced for the second study, Hypothesis 1 predicted that multitasking frequency would be related to the inclusion of language typical of SITs in two formal communication situations. This hypothesis was tested in two ways. First, Hypothesis 1a predicted students who were encouraged to multitask during the creation of two formal written messages in a computer lab would be more likely to include language typical of SITs when compared to students who were not encouraged to multitask. To test hypothesis 1a, an independent-samples $t$-test comparing the mean overall score of students in Stimuli 1 (here, the study’s manipulation prompt encouraged students to multitask) and Stimuli 2 (here, the study’s manipulation prompt did not encourage students to multitask) found no difference between the two groups ($t(58) = 1.35, p = .06$). The mean score on all three forms of potential writing errors (formalness, SIT, grammar) across both the letter and the email were not significantly different when Stimuli 1 ($M = 18.48, SD = 6.53$) was compared to Stimuli 2 ($M = 21.35, SD = 9.54$). Hypothesis 1a was not supported.

The first hypothesis was also tested by looking directly at the multitasking behaviors students engaged in while working on their two formal messages. Hypothesis 1b predicted that spending time off-task while in the computer lab would all be related to the inclusion of language typical of SITs in two formal communication situations. Pearson correlations were used to test the relationship between the scores on the writing tasks in relation to the frequency with which students multitasked.
Table 3.25 shows that while time off-task and the number of off-task behaviors were not related in any direction to students’ overall scores, they were positively related to the combined formalness and formatting scores, the formalness and formatting scores on the letter, the grammar score on the letter, and the grammar score on the email. For example, time spent off-task while in the lab was significantly positively related to the combined formalness score \( r = .23, p \leq .05 \), the formalness score on the letter \( r = .23, p \leq .05 \), the grammar score on the letter \( r = .25, p \leq .05 \), and the grammar score on the email \( r = .23, p \leq .05 \). Using the coefficient of determination \( r^2 = 0.064 \) reveals about 6.4% of the variance on the students’ grammar score on the letter can be explained by how much time they spent off-task. This finding suggests there is a weak significant relationship between the grammatical correctness of the students’ letters and how much time they spent off-task while in lab. While the inclusion of SIT-like language was unrelated to being off-task, the inclusion of both the formatting and grammatical mistakes in the email and the letter were related to spending more time off-task and/or the propensity to engage in off-task digital behaviors, use unrelated websites, and use superfluous computer programs.

Looking at the two tests of the first hypothesis clarifies that multitasking took place regardless of which stimulus a student was randomly assigned to and more importantly that when multitasking took place, it was often associated with increased formatting and grammatical errors.

The second hypothesis in Study II predicted that students’ scores on all four of the cognitive and communicative predisposition scales (Cognitive Flexibility, Need for Cognition, Communicative Adaptability, and Conversational Sensitivity) would be positively related to their performance on the two writing tasks in the computer lab. This hypothesis was tested by running
Table 3.25

*Correlations Between Being Off-Task and Performance on Writing Tasks*

<table>
<thead>
<tr>
<th>Performance on Writing Tasks</th>
<th>Time Off-Task</th>
<th>Off-Task Behaviors</th>
<th>Unrelated Websites</th>
<th>Additional Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Score</td>
<td>-.05</td>
<td>-.03</td>
<td>-.03</td>
<td>.10</td>
</tr>
<tr>
<td>Score on the Letter</td>
<td>-.01</td>
<td>.02</td>
<td>-.01</td>
<td>.10</td>
</tr>
<tr>
<td>Score on the Email</td>
<td>-.08</td>
<td>-.05</td>
<td>-.06</td>
<td>.13</td>
</tr>
<tr>
<td>Formalness Score Combined</td>
<td>.23*</td>
<td>.07</td>
<td>.22*</td>
<td>.27*</td>
</tr>
<tr>
<td>Formalness Score Letter</td>
<td>.23*</td>
<td>.04</td>
<td>.23*</td>
<td>.26*</td>
</tr>
<tr>
<td>Formalness Score Email</td>
<td>.12</td>
<td>.09</td>
<td>.08</td>
<td>.16</td>
</tr>
<tr>
<td>SIT Score Combined</td>
<td>-.18</td>
<td>.00</td>
<td>-.20</td>
<td>.01</td>
</tr>
<tr>
<td>SIT Score Letter</td>
<td>-.14</td>
<td>.04</td>
<td>-.18</td>
<td>-.06</td>
</tr>
<tr>
<td>SIT Score Email</td>
<td>-.20</td>
<td>-.06</td>
<td>-.19</td>
<td>.11</td>
</tr>
<tr>
<td>Grammar Score Combined</td>
<td>.18</td>
<td>.21</td>
<td>.07</td>
<td>.07</td>
</tr>
<tr>
<td>Grammar Score Letter</td>
<td>.25*</td>
<td>.22*</td>
<td>.17</td>
<td>.03</td>
</tr>
<tr>
<td>Grammar Score Email</td>
<td>.23*</td>
<td>.24*</td>
<td>.09</td>
<td>.03</td>
</tr>
</tbody>
</table>

*p ≤ .05
a number of one-tailed Pearson correlations; the results from those tests are covered in Table 3.26. Please note that while the hypothesis uses the term “positive relationship”, in the context of the current study – where a higher score means an increase in SIT-like discursive tendencies – a negative relationship actually signifies an association in the predicted direction.

Out of a possible 48 relationships, two emerged in the predicted direction – cognitive flexibility and SIT score on the email and communicative adaptability and formalness score on the letter. Looking at these results in isolation, it might seem appropriate to conclude that students who are more cognitively flexible and communicatively adaptable tend to write more appropriately formal emails and letters, but in the absence of any other significant relationships in the predicted direction, the legitimacy of this assertion is called into question. In general, hypothesis 2 was not supported. Further coverage of the possible implications of the data covered in Table 3.26 will be taken up in the discussion section below.
Table 3.26

Correlations Between Cognitive Flexibility (CF), Need for Cognition (NFC), Communicative Adaptability (CA), Conversational Sensitivity (CS), and Performance on Writing Tasks

<table>
<thead>
<tr>
<th>Performance on Writing Tasks</th>
<th>CF</th>
<th>NFC</th>
<th>CA</th>
<th>CS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Score</td>
<td>-.08</td>
<td>-.14</td>
<td>.02</td>
<td>.07</td>
</tr>
<tr>
<td>Score on the Letter</td>
<td>-.03</td>
<td>-.08</td>
<td>.05</td>
<td>.06</td>
</tr>
<tr>
<td>Score on the Email</td>
<td>-.16</td>
<td>-.16</td>
<td>-.07</td>
<td>.05</td>
</tr>
<tr>
<td>Formalness Score Combined</td>
<td>-.10</td>
<td>-.10</td>
<td>-.20</td>
<td>-.01</td>
</tr>
<tr>
<td>Formalness Score Letter</td>
<td>-.15</td>
<td>-.08</td>
<td>-.24*</td>
<td>-.02</td>
</tr>
<tr>
<td>Formalness Score Email</td>
<td>.05</td>
<td>-.10</td>
<td>-.05</td>
<td>.02</td>
</tr>
<tr>
<td>SIT Score Combined</td>
<td>-.15</td>
<td>-.11</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>SIT Score Letter</td>
<td>-.02</td>
<td>-.10</td>
<td>.15</td>
<td>.04</td>
</tr>
<tr>
<td>SIT Score Email</td>
<td>-.29*</td>
<td>-.13</td>
<td>-.19</td>
<td>.02</td>
</tr>
<tr>
<td>Grammar Score Combined</td>
<td>.16</td>
<td>.01</td>
<td>.24*</td>
<td>.04</td>
</tr>
<tr>
<td>Grammar Score Letter</td>
<td>.21</td>
<td>.01</td>
<td>.19</td>
<td>-.02</td>
</tr>
<tr>
<td>Grammar Score Email</td>
<td>.10</td>
<td>-.04</td>
<td>.18</td>
<td>.07</td>
</tr>
</tbody>
</table>

*p ≤ .05
CHAPTER IV: DISCUSSION

Summary of the Findings from Study I and Study II

The two related studies in this research project were designed to test whether or not the social and informal written communication practices typical of socially interactive technologies (SITs) are permeating college students’ more formal communicative writing. From the outset of the project, SIT use and concerns about the supposedly increasing “communicative ineptitude of young people” (Thurlow, 2006, p. 671) have been linked, although not empirically, by the press, public, and academy in a hyperbolic debate. The alarmist tenor of this debate has brought on a sort of moral panic regarding the relationship between interactive media use and young people’s writing practices. The current research was meant to inform this mostly unsubstantiated debate with a social scientific research design that looked at the SIT use of a sample of college students in association with an examination of the formal written discourse of those students.

This research project was couched in a historical understanding of the conjunction between changes in social and informational media and changes in language practices. Both media and language are always changing, sometimes together and sometimes not. One key to this research was to understand whether Internet technologies are a significant factor related to observable changes in young people’s more formal written discourse. Results revealed some evidence that the informal discursive language practices of SITs are to some extent being transferred by college students into more formal writing situations.

While past emergent media have often been errantly thought to negatively affect written discourse, there is one major difference among print, broadcast, and interactive digital media that requires coverage here. The Internet, especially Web 2.0, is a decentralized space noteworthy for audience fractionalization and user-generated content, which means media consumers are now
also media producers. It was argued earlier that this decentralization is to some extent undoing the structure printed media brought to written English. Within socially interactive technologies, any person with a computer and Internet connection (99% of the college students in this sample reported they have their own networked computer at home) is able to become her/his own publisher and actively create unedited typewritten messages to be shared with numerous networked others. In this way, interactive written discourse extends writing beyond the confines of the printed page and the classroom like never before. In past media systems (i.e., print and broadcast), messages were mostly produced by a small group of people interested in making their words and ideas consumable by many (as messages were mostly disseminated en masse). This notion has led some media scholars to assert that print and broadcast helped foster “vernacular linguistic unification” (Anderson, 1991, p. 78).

Perhaps strong ties to print culture, and the relatively stabilized form writing took in that era have lead to nostalgia and uncertainty among some educators and journalists because of an undue allegiance to print as the standard for writing. Indeed, Carrington (2005) argues there is a growing disconnect between out-of-school texts and in-school notions of what writing should be, which Carrington notes are tied to a cultural affinity for printed media.

Regardless of one’s proclivities for print as the standard in formal written English (or not), it is clear socially interactive technologies further the productive capacity of technologically mediated language use for an increasing number of people in the United States. Past research in the modes of communication tradition shows media technologies hold particular grammars, language structures, and aesthetic styles associated with each medium. The new wrinkle provided by the current research is that the discursive structure of the written language associated
with one medium or a group of media (i.e., SITs), if used frequently enough, can be related to how written language is deployed in other media and other social contexts.

Indeed, results revealed more frequent use of SITs in general, and certain formats in particular (text messaging and instant messaging), are consistently related to the inclusion of particularly informal written communication in two formal writing situations. Problems with formalness and formatting, the inclusion of a nonstandard SIT-orthography, and grammar mistakes were all significantly related to frequency and/or preference for various socially interactive technologies in the current study. At the same time, SIT use was rarely, if ever, related to a reduced frequency of these types of mistakes.

Taking a step back, the first study’s results revealed socially interactive technologies are generally popular among the college students in this sample and that the gap between SIT use and television viewing, the most dominant medium in the United States, might be closing. Furthermore, some SITs (Facebook and text messaging) are used on a daily basis and are quite well-liked by most of the college students in this sample, others appear to be in a state of popularity decline (MySpace and instant messaging), while others still have not yet reached the diffusion levels projected in earlier research (personal blogs). The first study also revealed students’ use of socially interactive technologies is largely unrelated to how much those students engage in silent, sustained reading for pleasure.

A series of statistically significant and consistent correlations between SIT usage practices and particularly informal writing in two writing tasks suggest the two phenomena are related among students in the current sample. These results show that social media use might be one salient indicator of the use of a non-standard orthography (especially in relation to educational and print-based writing traditions). Of course, media are only ever one in a line of
many possible socio-cognitive influences (including demographic realities) on the human experience. To this end, the current results, which were not statistically robust, offer little evidence to justify the hyperbolic moral panic surrounding this issue in both journalistic and scholarly circles. That said, the current research holds some heuristic value as it legitimizes further empirical examination of the ways emergent media use relate to trends in young peoples’ formal written discursive practices.

The remainder of this chapter will consist of more in-depth and detailed discussions of the findings and implications of both studies to make sense of the myriad results covered in the previous chapter. To ensure this type of investigation does not stop with this research, the chapter will conclude with challenges and limitations of the current research and recommendations for future studies that attempt to look at socially interactive technologies in relation to competent written communication.

**Implications of Frequency of College Students’ SIT Use**

In regards to individual practices, results from the first study revealed that Facebook is the *current* clear favorite for online social communication while text messaging’s popularity clarified that written socio-digital interaction is not only popular on computers but also mobile media. These two SITs held the highest means when calling upon the series of five-point Likert-type “Liking” variables; current college students appear to prefer Facebook and text messages over IM and blogs. A recent examination of 305 high school students (Valentine & Bernhisel, 2008) also found that social networking websites and text messaging were considerably more popular among the students than reading blogs and instant messaging programs.

In the current study, blogs were among the least popular of the socio-digital options afforded to students by computers. This is somewhat surprising considering recent research that
claimed blogging to be “one of the most popular areas of internet activities among young people” (Crystal, 2008, p. 158). Neither this study nor Valentine and Bernhisel’s (2008) examination of high school students’ blogging habits support this claim. That blogging is not particularly popular among college students is the first of a number of results that show it does not fit particularly well among its conjectural technological cousins under the rubric of socially interactive technologies. That blogging is not especially popular is also perhaps unfortunate in light of a number of results from both Study I and Study II that suggest blogging may be beneficial for college students. Blogging is the only SIT related to higher book reading rates, higher college GPAs, increased levels of cognitive flexibility and need for cognition, and writing well in two formal communication situations in Study II.

Blogging was not the only surprisingly unpopular SIT; both MySpace and IM usage were lower than might have been expected based on previous research. A recent study conducted by the Pew Internet & American Life Project (Lenhart & Madden, 2007) reported MySpace “dominates” the high school social networking world. In the current study, 96% of college students said they visit Facebook everyday and 58% said they update their Facebook page every weekday, compared to only 36% daily usage of MySpace and only 13% of students noting they update their MySpace page every weekday. Part of this disparity might be due to taste differences between high school and college students.

It is more likely, however, that this shift in popularity is due to the fact that at the time the Pew Project collected data, Facebook had only recently been opened for general public use. Before this change, Facebook was a “closed” system which required affiliation with a college or high school for individuals to join the network, a requirement never made by MySpace. By eventually making Facebook a public website, its shared parent companies, News Corp and
Microsoft, have also made it one of the most popular socially interactive technologies among college students and one of the most popular websites on the Internet generally. According to Arrington (2007), Facebook is the 5th most valuable Internet company in the United States, coming in behind digital giants Google, eBay, Yahoo, and Amazon.

Like blogging and MySpace, instant messaging usage rates (64%) were lower than might have been expected based on past research regarding IM diffusion among college students in the United States (Chung & Nam, 2007; Flanagin, 2005; Lee & Perry, 2004). What might be the reason for this apparent decline (also confirmed among high school students by Valentine & Bernhisel, 2008)? Part of it might be the natural ebb and flow of emergent technology use. Specifically, it seems Facebook and other newer, more all-encompassing SITs are displacing older formats like chat rooms and instant messaging programs.

Facebook, MySpace, and other social networking websites afford users the opportunity to chat in real time and exchange instant messages with online friends while also offering a number of other multimodal interactive options not available in the typical IM window or chat room. This displacement notion is not purely speculative as 13 students in the current sample wrote in the margins of the questionnaire that while they frequently used instant messaging programs in the past, they recently stopped for a variety reasons. Numerous students noted that because they now regularly use Facebook, they have no need for a stand-alone instant messaging program. When asked whether she used instant messaging, one female participant wrote, “Not so much anymore. I only use facebook chat occasionally when I’m on facebook, but I don’t use any other IM account”.

To examine the possible relationships among SITs, books, and newspapers, the second research question in Study I asked whether SIT use would be related to silent, sustained reading
(SSR) in the current sample. SITs appear to afford reading (and writing) that is quite different from that which is afforded by books. SITs present written language in casually constructed and short, fast-paced messages, often competing with other modes for readers’ attention. In this sense, SITs seem to reduce the need for concerted reflection and the likelihood young people will engage in the type of SSR long associated with books.

Results revealed the way students in the current sample use and feel about SITs has little, if any, bearing on how much they read books. That said, using the series of “compared” variables, text messaging was significantly negatively related to reading non-fiction books and novels. Because these relationships were weak and did not materialize using the “minutes per day” variables or the “liking” variables, the reliability and validity of this finding remain equivocal.

A series of similarly equivocal results linked the amount of time students spend reading newspapers with the amount of time they spend instant messaging, using Facebook and MySpace, and reading blogs; this relationship did not continue across the “compared” and “liking” variables. Based on the relatively infrequent and weak relationships between newspapers and SITs, it seems fair to conclude that like books, newspaper readership is generally unrelated to SIT use. How much students use SITs (other than blogs) is not related to increased or decreased reading rates in the current study.

Results associated with the second research question revealed blogging is significantly positively related to book and newspaper readership across all three ways implemented to measure media use in the current study. In short, those students who read a lot tend to blog a lot and those who do not read a lot tend not to blog a lot. Blogging, then, differs from its technological cousins in the current study. While this relationship likely requires follow-up
research to elucidate its meaning, it is immediately apparent this difference might be due to the relatively divergent affordances of blogging when compared to the other SITs.

Compared to IM and Facebook, blogging is less purely a social activity and perhaps more an intellectual endeavor. When compared to other SITs, blogging is more about making inventive and studious observations (often related to current events) and being given the opportunity to have one’s voice and opinions heard. Of course this type of behavior does take place in other SITs (especially Facebook, which is increasingly newsy and topical) but the purpose of the other SITs seems to be more clearly related to making connections with others, socializing, and playing with language. The divergent affordances of blogging when compared to other SITs will continue to develop as this discussion unfolds.

However different blogging appears to be in relation to other SITs, the current results also generally support the tendency to group SITs together as a set of media modes with similar affordances and similar usage rates (including blogging). For example, minutes using Facebook per day was significantly related to minutes using MySpace, minutes writing blogs, minutes reading blogs, number of text messages sent and received per day, and minutes using IM. Furthermore, despite taking place on a different medium, daily text messaging frequency was significantly positively associated with daily social computer use. The consistency of these relationships suggest that despite the differences in media format, texting and social networking afford comparable forms of written communication that are similarly well liked and implemented at similar rates by college students.

Now that some of the basic SIT usage frequencies have been covered, the current discussion will move to what this usage might mean for students’ performance in school. The third research question in Study I sought to understand the extent to which out-of-class written
communication with SITs is relatable to in-class performance at college. Results revealed that

text messaging and Facebook usage were both significantly negatively related to college grade

point average across all three forms of inquiry used to measure SIT use. Although the

relationships were weak, statistically speaking, this trend did emerge across both ways to

measure general use of one’s computer for social reasons and MySpace use when the “minutes

per day” and “compared” variables were called upon.

The above findings confirm research conducted about instant messaging in the early

2000s when Lee and Perry (2004) found among the college students they sampled, those who

showed the most preoccupation with instant messaging also typically had the lowest college

GPAs. That college students who use SITs also tend to have lower grade point averages recently

made national news (www.time.com). Research conducted by a communication studies doctoral

candidate at The Ohio State University, and picked up by Time’s online news source, found

higher levels of Facebook use were significantly related to lower college GPAs among a sample

of 219 undergraduate and graduate students.

Theoretical Implications of the Theory of Affordances

This section covers some of most salient results from Study I and Study II and whenever

possible these results are analyzed herein under a framework provided by the theory of

affordances. In a broad sense, the theory of affordances was fruitful in clarifying the ecological

relationship between mediated tool use and message outcomes in the current research program.

The theory provided a balanced framework in which the technological design of computers (and

other digital media) is configured in association with each individual’s digital media usage

practices, the goals and intentions of that user, and the established socially agreed upon usage of

that technology, which together lead to language outcomes. For example, the multitasking and
concurrent capabilities of computers were available to all student participants in Study II, but it tended to be those who actually used those options who also included increased writing errors as defined by the current coding scheme, which focused on appropriate formal written discourse. In this way, this project makes clear that technology alone does not determine writing outcomes, nor does the individual create messages in isolation without being affected by the technology’s affordances. Instead, both the technological object and the social user (and all her/his idiosyncrasies) together lead to divergent communication messages.

*Theoretical implications of Study I related to the theory of affordances.* College students of today are faced with a new set of challenges as they try to carefully and effectively complete their coursework. Because computers and increasingly mobile digital media *afford* a multitude of interactive, social, multimodal, easy-to-retrieve, and easy-to-respond-to avenues for diversion from the frustrations related to sustained inquiry, people (young and old) are left with brains that are always on but perhaps also always spinning.

These emergent digital challenges were outlined in a recent article in *The Chronicle Review*, published by *The Chronicle of Higher Education* (Edmundson, 2008) as well as covered in sociolinguist Naomi Baron’s book, *Always On* (2008). Whereas students of past generations merely had to contend with “real world” distractions from roommates, nagging parents, needy love interests, and pesky professors, students of today have the opportunity to expand their social network and their entertainment world to dizzying heights. Edmundson, a professor at the University of Virginia, argues that because of all the options afforded to students by digital media, young people are left (with only enough time in their lives and space in their brains) to graze through their coursework rather than dive deeply into any subject. This surface level grazing is enabled, even encouraged by that which the computer affords (and denies) its users.
Edmundson argues, “What makes the Internet singular is its power to expand desire, expand possibility beyond the confines of prior media. (My students are possibility junkies.)” (p. 3).

The temptation for a college student to do something, anything, other than their course work is now more enticing than ever. Previous research covering the effects of multitasking (see Baron, 2008; Wilson, 2005; Wijekumar et al. 2006) has shown interruptions like an instant message, a cell phone call, a text message, or a Facebook poke can be distracting and displace workers’ time and attention away from their task and onto that social exchange, which ultimately negatively affects the quality of the work. A recent study (Thatcher, Wretschko, & Fridjhon, 2008) found the more socially interactive an Internet application was, the better predictor it was for problematic Internet use and Internet procrastination. Results from Study II show students who were not able to avoid the temptations afforded by an ordinary college laboratory computer included more formatting and grammatical mistakes when compared to students who were able to avoid such distractions.

It is not surprising that while all things digitally mediated happen right now and words in textbooks sit patiently waiting to be read, students often choose the more viscerally enticing over that which requires more in-depth thought and analysis. In his article, Dwelling in Possibilities, Edmundson argues, “To live well, we must sometimes stop and think” (p. 10) but the technological objects that have been handed to our students to help them thoughtfully complete their work do not always afford that luxury. Instead, students are asked to stay dedicated to their work and defy their digital options by affording themselves an opportunity to focus on their studies in the face of so many opportunities to escape. And all this with the very same object we ask them to use to write thoughtful, well researched, and well crafted term papers.
Crook and Barrowcliff (2001) looked at the way college students completed schoolwork using computers in their dorm rooms and found online social activities outweighed educational activities by a ratio of four to one (and that was in 2001 when computers were slower, text messaging was in its infancy in the United States, and Facebook had not yet been invented). If students are not able to effectively manage and regulate the affordances of the technologies that surround them, their work might suffer. This, then, becomes an issue to which teachers and administrators working in higher education must attend. Perhaps communication research, like the current studies and the simultaneous work being done at The Ohio State University (and presumably elsewhere), can help bring media literacy research and communication pedagogy to the forefront of this issue by offering a set of out-of-class approaches that will foster a space in which harder-to-swallow school work can compete with the always alluring but often distracting socio-digital landscape.

Of course, it would be unfair to paint the entire Internet with the same fault-finding affordances brush. While the results from the second research question show some SITs are related to lower college GPAs, blogs appear to be a beneficial opportunity afforded to college students by networked computers. Spearman correlations found that higher relative preference for writing blogs and reading blogs was related to higher GPAs. Although the $r$ values are quite small, indicating only a weak association, the consistency with which blogging is related to positive outcomes for students in the current study should not be chalked up to statistical chance.

*Theoretical implications of Study II related to the theory of affordances.* Whereas Study I was meant to build a better understanding of how college students use socially interactive technologies, Study II was designed to determine whether or not the interactive written discourse
(IWD) common in SITs is or is not making its way into college students’ more formal written communication contexts.

Results revealed use of a cell phone to send text messages was significantly related to students’ overall performance on the letter of interest and the email to the professor. Although the coefficient of determination between text messaging and the overall score reveals that only about 8.5% of the variance on the overall score can be explained by text messaging, it is fair to conclude higher text messaging frequencies are related to increased inclusion of interactive written discourse in this study. It is worth noting that text messaging, the only non-computerized SIT examined in this study, was also the only significant factor when looking at the combined overall score and the combined score on the letter. Furthermore, by looking more closely at the results from the first research question in Study II, it becomes clear text messaging frequency was most relatable to performance on the letter of interest and not the email sent to the professor. This notion suggests discursive behaviors typically found in one medium (in this case a cell phone) can cross-over into different mediated contexts (in this case a business letter written on a computer).

Within a “modes of communication” framework each emergent technology is thought to offer a new and unique style of writing and verbal aesthetic that will influence the content created with that technology. To date, there is a great deal of research that supports this claim but there is little evidence frequent communicative writing behaviors which take place in one medium tend to make their way into an entirely separate mediated writing context. Perhaps text messaging is such a unique form of written communication that particularly frequent text messagers have difficulty switching back to other forms of writing more appropriate for other contexts. Of course, further research is needed to establish whether or not text messaging
frequency is causing the transference of these writing patterns because the current data is corollary and thus all that can be said at this point is that the two phenomena are related.

But what might be bringing about this relationship? The theory of affordances (TOA) and the particular social and technological affordances of text messaging should lend some clarity here. Within TOA it is assumed the physical properties (i.e., technological affordances) of a medium direct the consumption and creation of language with that medium by constraining how a message can be produced and consumed. The ecological nature of TOA further allows for the notion that the socially agreed upon usage practices related to a particular medium (i.e., social affordances) can also enable and constrain the production and consumption of the message beyond the material substratum of the technology itself.

Looking first at the technological affordances of text messaging, cell phones afford minimal formatting capabilities to their users. A lack of opportunity to format a message means that letters, symbols, words, and sentences tend to run together with minimal spacing, which was largely unprecedented before the emergence of SITs (Crystal, 2008). Language in chat rooms, IM programs, and blogs also feature reduced formatting but the relatively small cell phone screen (as opposed to a computer monitor), the limits on the size of the message (typically about 140 bytes of data or 160 characters), and a numerical keypad (as opposed to an alphabetical QWERTY keyboard) make formatting a text message a challenge. Because of the increased number of button presses required to formalize language on cell phones, such as the addition of punctuation marks, it becomes more difficult for even the most careful communicator to send grammatically correct messages. That said, alphabetic keypads are becoming more popular in the United States; indeed, in the current sample 63% of the students said their cell phones are equipped with QWERTY keypads.
The size and length limits imposed on text messages by the technological design of that medium mean users tend to send relatively short messages while texting. The concern here is that the constraint to write short sentences and messages in one context might lead to thinking in correspondingly shorter bursts such that people who text a lot might become less adept at handling more in-depth writing tasks. There is some evidence for this effect. Raval (2002) found that texters wrote less than non-texters when asked to describe a picture or an event, lending credence to the notion that the expressiveness of one’s writing might be affected by frequent text messaging.

It is not only the size and length limits imposed by cell phones on text messages that afford the creation of shorter messages but also the fact that text messages are ephemeral (not semi-permanent documents like printed ones), immediate, speedily deployed, social, and thus casual. If a person is sending a text message to a friend to see if she would like to go to lunch, then it makes little sense to worry about polishing that message to ensure the grammatical accuracy and eloquence of the query. Of course, in more formal writing contexts (for example, when asking your manager to go to lunch with you via email) these concerns are brought back into the fold. The current results suggest frequent texting might be related to how language is deployed in other, more formal, contexts.

Text messaging, while clearly a social endeavor, is limited to writing, an act that is noteworthy for its lack of the existential cues (i.e., tone of voice, facial expressions, body movements) which are typically used by communicators to understand each other’s messages in face-to-face speaking situations. Having these social cues “filtered out” of the text messaging process (which is also true of most interactive written discourse) means communicators often “hyperpersonalize” their messages (Walther, 1997) with particularly expressive forms of writing.
such as emoticons, reduplicated letters, and playful capitalization. Later, in the review of the results that look specifically at the inclusion of a non-standard SIT-like orthography, it will become clear that text messaging might well be a factor here.

Of course, it is not simply the technological affordances of text messaging that encourage particularly hyperpersonalized messages. Something in the way people have socially agreed to use the technology is also likely a factor. There is evidence that playing with language for ironic and facetious effect is common in text messaging. People, perhaps especially young people, enjoy deploying word forms that are considered inappropriate in more guarded contexts like print. Although many young texters like to be different and enjoy expressing that difference by breaking language rules (as well they should), young people also tend to argue they know what is appropriate in one context is not always appropriate in another (see Crystal, 2008, pp. 17 and 152). The current results do not support this assertion. Certainly most thoughtful young communicators would not consciously break these rules but perhaps the process is more subtle than that, wherein the frequent texter is largely unaware of the habits that form in one context and thus perhaps those habits are able to seep into other contexts largely unbeknownst to the communicator.

Taking a theoretical step back, it seems the previous notion of being “always on” is increased by the presence of cell phones (and their related affordances) in college students’ lives. Receiving a text message (and then responding to it) can be an interruption or distraction for any person. For college students who have recently been granted increased autonomy, managing this temptation likely requires a great deal of discipline. Perhaps frequent enough incoming and outgoing text messages can lead to diversionary procrastination that takes students away from their school work, which presumably would help them prepare for the type of writing exercises
examined in Study II. Again, 97% of the current sample of college students use their cell phones to send and receive an average of about 116 text messages each day. Assuming students’ sleep about eight hours a day, that is more than seven text messages per waking hour, which seems like enough interruptions to distract even the most dedicated students. In light of all the research that shows multitasking is detrimental to successful task completion, the distracting affordances of cell phones and other socio-digital media cannot be ignored.

Returning to the results used to answer the first research question in Study II, a few other significant relationships warrant discussion. First, when students’ scores on the email were separated from their scores on the letters, two additional relationships between SIT use and writing outcomes emerged. Specifically, using the “compared” variables, significant Spearman correlations between general use of one’s computer for social reasons and Email score, and instant messaging frequency and Email score emerged. When using the “liking” variable, IM was also significantly related to the Email score. In this study, then, more contextually and socially appropriate writing in the email was related to lower relative computer use for social reasons and lower IM usage rates and a reduced affinity for that medium.

Research questions 1a through 1c were included to clarify which SITs were related (or not related) to each of the three forms of IWD-like language examined in this study (formalness and formatting, SIT-like orthography, and grammar mistakes). Looking at the relationships between instant messaging and writing performance across these queries, it becomes clear it was the formalness and formatting of the emails (and not SIT-like orthography or grammar) that led to the significant overall relationship between IM use and the Email score. The formalness of the email (or lack thereof) was related to the number of minutes a student uses IM per day, and how much they say they like that medium. These results show the possibility for IWD to crossover
into other writing contexts should not be reduced to counting the instances of an SIT-like orthography (such as abbreviations and emoticons). It seems the transference can be more subtle than that as formatting habits learned in IM and other SITs appear to be related to how a document is structured and language is deployed in other contexts.

The theory of affordances offers some guidance for how and why frequent IM use and formatting a formal digital document might be related. Like text messaging, instant messaging programs do not easily afford textual formatting (especially relative to other SITs like blogging, Facebook, and MySpace, which all enable more advanced visual presentation). Additionally, because a user name or “handle” is inherently associated with an IM window, the medium and its users have made the exchange of pleasantries such as salutations and closings less necessary and thus less common in IM than other digital spaces (such as email). Furthermore, IM affords a spontaneous brand of typewritten communication (even faster and more synchronous than texting in that instant messages are exchanged in real-time with no noticeable delay) in which revising takes a back seat to creative writing, in a way not often seen in formalized print contexts. It might be that students who spend a lot of time instant messaging tend to treat text in an email window similar to the way they treat text in an IM window. Problems formatting the letter were not related to students’ IM practices suggesting the difference between a formal letter and an IM window might have been more clear to the current students than the differences between an IM window and the more traditional and austere but still fully computerized email message.

Also like text messaging, instant messaging use affords the potential for college students to procrastinate and be distracted while completing their coursework. In the current study, 82% of the IM users reported they tend to communicate with two or more friends during a typical IM
session. Additionally, 65% of IM users in this study reported they also tend to use IM while studying. The affordances of IM, not typically thought of as a stand-alone behavior, make it an ideal activity to enjoy while doing something else. Again, past research on the effects of multitasking and results covered below show that the more concurrent activities a person engages in while working, the lower the quality of that work tends to be.

Research question 1b asked whether students’ SIT use would be related to the inclusion of orthography typical of SITs in two formal communication situations. Instances of some of the most hackneyed examples of a unique SIT-orthography, such as emoticons (0 instances in 120 student messages), reduplicated letters (0 instances), inappropriate abbreviations (16 instances) and unorthodox subject breaks (8 instances) were rarely if ever included in the students’ writing. Other SIT-like writing habits were more common, such as inappropriate capitalization (93 instances) and use of particularly informal word choices (65 instances). Despite the relative infrequency of a SIT-like language usage (336 instances of any kind in 120 student messages), some significant relationships did emerge when looking at SIT use from Study I in tandem with the writing outcomes in Study II.

First, text messaging frequency relative to other college students was related to the combined SIT score on the letter and email and to the SIT score on just the letter. Text messaging, Facebook, and writing blogs were all related to an increased likelihood students would include instances of an SIT-like orthography that might not be appropriate in more formal communication. These results lend support to Baron’s (2008) claim that the language of SITs has the potential to chip away at prescriptive writing standards and seep into more formal writing contexts.
There are obvious theoretical reasons why text messaging frequency might be significantly related to the inclusion of a non-standard orthography in other contexts. As previously discussed, the cumbersome way in which communicators are asked to send written messages with cell phones leads to a dynamic tension between the social goals of the user and the affordances of the technology. It is in this awkward in-between space and out of this tension that abbreviations, non-standard capitalizations, and other SIT-orthographic structures are thought to have materialized (in much the same ways they did in chat rooms and IM programs).

While theoretical explanations are perhaps less obvious when looking at Facebook use and blog writing in relation to the inclusion of an SIT-like orthography, some points can be made. Facebook is multimodal in that it affords communicators a diverse array of ways to communicate with friends. Facebook users can send instant messages, asynchronous email messages, one-line messages shared with all friends on a users’ list, comments on friends’ photos, and much more. Many of these modes afford a kind of playful and stylistic type of writing that is less about following rules and perhaps more about breaking them to the delight of fellow users. Its seems holding a particular taste for Facebook and its emergent brand of communication might be related to the erroneous deployment of this informal style even when writing a letter to an potential employee. Similarly, people who write blogs tend to take advantage of the fact that, unlike journalistic print contexts, blog writing does not pass across the desk of a copy editor. The messages in blogs are meant to be free to display nonconformist writing. In the current sample, frequent blog writing and a particular affinity for writing blogs was related to the inclusion of this breezy and colloquial style even when writing an email to professor.
Looking at the results used to answer research question 1c, which dealt with grammatical mistakes, it appears that while blogging is related to the inclusion of SIT-like language in other contexts, it is also conversely related to the inclusion of fewer grammatical errors. For example, how much a participant said they write blogs when compared to other college students and how much they reported they liked blogging were both significantly related to the inclusion of fewer grammatical errors in the letter of interest. No other SIT was related to better grammar on the two writing tasks and only daily text messaging frequency was related to the inclusion of more grammatical errors in the email.

Blog writing’s relationship with fewer grammatical errors in other contexts might be less about the technology itself and more about the type of person who blogs. Current results revealed students who like to blog also like to read. As previously discussed, blogging, unlike other SITs, is less of a social and more of an intellectual avenue for discussion that lends itself to potentially quite studious exchanges (which is perhaps why teachers are increasingly requiring students to blog in class). Additionally, blogging is a one-to-many activity whereas text messaging and instant messaging are one-to-one activities.

By affording writers the opportunity to communicate with many readers at once, blogs also require more standard language usage in order for messages to remain intelligible to a wide range of readers. Perhaps frequent blogging encourages writers to be aware of language conventions so their message will be successfully received and understood by as many audience members as possible. Blog posts also tend to be longer than other messages formulated in SITs. Writing a blog post (which, like a news article or a short-story, often contains a narrative as well as a clear beginning, middle and end) necessitates a structure that is reliant on the benefits of grammar to allow relatively complex points to be made.
The theoretical implications of TOA in relation to multitasking. The first hypothesis of the second study predicted that multitasking frequency would be related to the inclusion of language typical of SITs in two formal communication situations. A series of Pearson correlations revealed this hypothesis was partially supported. Across four different ways to measure multitasking, ten significant relationships emerged between increased multitasking and decreased success in formatting the two documents and keeping the messages free from grammatical errors. Specifically, spending more time off-task during the 30-minute laboratory computer session was significantly related to the increased inclusion of formatting and formalness errors on the letter and more frequent grammatical mistakes in both the letter and the email. Significant relationships also emerged between the number of unrelated websites a student visited while in lab, the number of additional programs a student used, and the total number of off-task behaviors a student indulged in and decreased writing performance. At the same time, no form of multitasking was significantly related to increased inclusion of SIT-like language or increased social appropriateness on the two formal writing tasks.

These findings make intuitive sense as indulgence in frequent off-task behaviors likely diverted students’ attention and displaced time away from editing and revising their documents. Computerized multitasking affordances and their relationships with unsuccessful task completion, however, might have cognitive implications for college students beyond simple diversion. Eveland and Dunwoody (2001) argue, “hypermedia systems such as the Web may actually reduce learning by increasing cognitive load and producing disorientation among users” (p. 49). The authors speculate that hypermedia technologies impose more cognitive load on users than printed texts because interactive media technologies increase “metalevel decision making” (p. 51) when compared to print contexts where authors make many of the choices on the user’s
behalf. In short, Eveland and Dunwoody assert that more is required cognitively from users to navigate the circuitous texts in digital environments potentially leaving users overloaded and disoriented.

A closer look at the students’ multitasking behaviors while in lab revealed that Facebook was the most commonly visited unrelated website in the sample (10 of the 60 students visited Facebook while in lab) and was responsible for enabling the second most concurrent off-task behaviors (18 of the 76 off-task behaviors—such as contacting a friend or playing a game on a gaming website—took place on Facebook). These findings further validate the previously discussed potential that SITs are particularly distracting and disruptive Internet applications potentially increasing students’ cognitive load.

Interestingly, the website that provided the most overall distractions for the students in the current study was www.bgsu.edu (accessed directly through webmail or indirectly through mybgsu). On 34 separate occasions, students could be seen in the video recording of their lab session being pulled off-task as they read and wrote unrelated emails and responded to other content presented on the Bowling Green State University website. Study II makes clear it is not merely the affordances of a technology that can and should be related to differences in writing outcomes but also how each individual user calls upon the affordances of that technology. This finding offers evidence that the very system set up to help students complete school work contributed to the hindrance of their task completion in this contrived laboratory setting. If students are not able to effectively manage the affordances of the computers that surround them at school, then it is likely their work will suffer.

While the theory of affordances posits that the physical properties of a medium like a computer can direct the consumption and creation of messages created there, media technologies
alone cannot and do not determine message outcomes. Instead, users’ goals, their internal differences, and the various ways they choose to implement a computer’s affordances configure to formulate a relationship with written message outcomes. Perhaps media literacy efforts and communication pedagogy can be applied more frequently and in more meaningful ways in universities’ efforts to promote better use of the affordances of school websites and other educational media made available by the Internet. Communication competence and cognitive processes might be areas for media literacy scholars to examine ways to facilitate this pedagogy.

Theoretical Implications Related to Communication Competence and Social Cognition

To understand the possible cognitive and communicative tendencies related to college students’ digital media use practices within and also outside academic settings, this research project sought to measure students’ communicative adaptability and flexibility through the inclusion of four scales: cognitive flexibility (Martin & Rubin, 1995), need for cognition (Cacioppo et al., 1984), communicative adaptability (Duran, 1983), and conversational sensitivity (Daly et al., 1988).

As an internal validity check useful to test whether the need for cognition scale (NFC) and media use frequencies reported by students performed together in statistically predictable ways, the results from students’ varying levels of need for cognition and their book reading and TV viewing frequencies were correlated. As the first hypothesis predicted, book reading (novels and non-fiction) was significantly and positively related to NFC across all three measures employed to assess media use. As the second hypothesis predicted, TV viewing was negatively related to a need for cognition across all three ways to measure media practices.

The fourth research question in Study I asked whether there would be any relationship between SIT use and need for cognition, as has been observed with other media. Need for
cognition can be thought of as a person’s tendency to take interest in and enjoy effortful thinking (Cacioppo et al., 1984). Individuals high in NFC are also more likely to use technologies and media that require higher cognitive processing (Cacioppo et al., 1996) and less likely to use media that only require passive and peripheral cognitive activity, such as television (Henning & Vorderer, 2001). The results from the first two hypotheses empirically confirm these earlier assertions, showing the need for cognition scale is useful in understanding what type of minded person uses what type of medium. By applying the NFC scale to SIT use, an understanding of what level of need for cognition is associated with each SIT (in relation to more established media) was engendered.

Results revealed that SIT use is mostly unrelated to high or low need for cognition. However, four out of 20 significant relationships materialized when SIT habits were coupled with placement on the NFC scale thus warranting further discussion. Specifically, using the “compare” variables, NFC was negatively related to use of one’s computer for social reasons and Facebook while it was positively related to both writing and reading blogs.

Looking at the results from the first two hypotheses and the fourth research question together allows for the placement of books, TV, and SITs on a need for cognition continuum. See Figure 4.1 for a visual representation of the proposed need for cognition medium continuum. Past and current research make clear that while books reside securely at one end of the continuum, TV resides at the other. Perhaps SITs, with their hybrid format (part textual and part visual, part social and part informational, sometimes requiring effortful cognitive engagement and sometimes not), reside between books and TV on the NFC continuum. Although further research is needed to confirm this arrangement, the current research suggests that use of
Figure 4.1. Proposed need for cognition medium continuum.
interactive digital media is not as passive a cognitive endeavor as TV viewing and not as active a cognitive endeavor as book reading. This middle ground might explain why previous studies have both argued that socially interactive technologies foster a passive mindset (Kraidy, 2002; Wolf, 2007) but also that they enhance depth of thought (Lewis & Fabos, 2005). Perhaps both assertions are correct depending on which SIT is being discussed and how that SIT’s affordances are being engaged by the specific user at a particular point in time.

More specific conclusions can be drawn about SITs’ relationships with need for cognition beyond placement on the continuum. Again, individuals high in need for cognition are more likely to use technologies that require or consist of effortful thinking and are more likely to have positive attitudes towards tasks that require reasoning and problem solving skills (Cacioppo et al., 1996). This notion helps explain the negative relationships among need for cognition and use of a computer for social reasons as well as Facebook. The affordances of these technologies (the latter being a more specific example of the former) have little to do with problem solving skills and effortful thinking; in fact, students likely use Facebook and other social computer-mediated applications to take cognitive breaks. Perhaps those students who are relatively less interested in effortful thinking and problem solving might be more likely to use Facebook and other social computer applications exactly because they do not afford intensive cognitive inquiry. Similarly, those who enjoy effortful thinking might not find solace in the kind of mental interlude afforded by Facebook and would rather take a break from work to spend their free-time on the Internet playing word games, reading informational Worldwide Wed content, blogs, and engaging in other more cognitive affordances of networked computers.

Indeed, high need for cognition has been empirically related to peoples’ ability to acquire knowledge on a variety of topics (i.e., political information and knowledge of trivia) (Cacioppo
et al., 1996; Sadowski & Gulgoz, 1996), an affordance not commonly associated with Facebook or other social networking websites. At the same time, that high NFC is related to the successful acquisition of information helps explain why need for cognition was positively related to blogging (both reading and writing) in the current study, as blogs clearly afford users more opportunity to consume information on a number of topics than any other SIT examined in this study. Additionally, Cohen’s (1957) research on need for cognition shows subjects high in NFC are more motivated to think about communication issues and messages when compared to those low in need for cognition. This notion further elucidates need for cognition’s positive relationship with blogging, an activity that offers a unique blend of communicational (via comments sections and talk-back applications), informational, and cognitive elements.

In addition to being prone to effortful thinking, problem solving, and using technologies that require these forms of thought, individuals high in need for cognition are also more content-centered while those low in need for cognition are more interested in attending to peripheral or contextual cues to glean information and understanding (Henning & Vorderer, 2001; Luna & Peracchio, 2002; Martin, Sherrard, & Wentzel, 2005; Putrevu, Tan, & Lord, 2004; Sadowski & Gulgoz, 1996; Sicilia, Ruiz & Munuera, 2005). This reality further explicates why blogs are particularly popular among individuals high in need for cognition while social networking websites are not. Blogs are reduced visual spaces, more austere than other SITs and websites. Blogs do not tend to rely on flashiness, slick imagery or other contextual elements to attract consumers as other web applications do. Instead, blogs tend to focus on verifiable and cross-referenced informational content as means to attract readers. Because individuals high in need for cognition tend to focus on the content of messages rather than peripheral contextual cues, it makes theoretical sense that those higher in need for cognition also tend to enjoy blogging.
On the other side of the same coin, Facebook is one of the more visually appealing socially interactive technologies, relying on numerous concurrent applications to garner and maintain users’ attention. In Facebook, the message is often secondary to the context (messages can be attached to photos, videos, and other minutia). It can easily be argued that the affordances of Facebook center on the contextual and peripheral elements of a message and not the message itself. In Facebook, most of the messages users exchange would make little sense without the interactive and multimodal context afforded by the website.

Relationships between cognitive flexibility and SIT use. The fifth research question in the first study asked whether there would be a relationship between SIT use and cognitive flexibility. Like need for cognition, cognitive flexibility (CF) is conceptualized as a relatively stable intrinsic predisposition that refers to the ways individual differences in cognitive processes relate to social processes. Specifically CF is defined as the ability and willingness to perceive and adapt one’s behaviors to meet the specific context of a social situation (Martin & Rubin, 1995). Results show that, much like NFC, CF is mostly unrelated to SIT use in the current sample. That said, the three significant relationships that took form did so with the same media, the same question types, and in the same direction as the NFC results. Through use of the “compared” variables, cognitive flexibility was negatively related to use of one’s computer for social reasons and through use of the “liking” variables CF was positively related to writing blogs and reading blogs. Perhaps past literature regarding cognitive flexibility can illuminate some of the implications of the current findings.

Returning to an early point asserted about interactive hypermedia might help explain cognitive flexibility’s positive relationship to blogging. Eveland and Dunwoody (2001) argue interactive technologies, like blogs, impose more cognitive load on users than printed texts
because the labyrinthine texts in digital environments require more cognitively from users than do more restrictive traditional media. Despite perhaps being less interactive than social networking websites, blogs do not impose the confinements and borders around information and texts that more traditional media do. Blogs are often plain looking, fluid spaces, linked to other online spaces through hypertext. In this way it is reasonable to theorize that the blog can be thought of as a particularly flexible online space (even when compared to many websites and other SITs as blogs are both social and informational). Blogs, then, perhaps require more cognitive flexibility than a TV news show or a newspaper, which both powerfully mediate the experience for the consumer by leading them through the information.

Past research shows cognitive flexibility is positively related to communicative adaptability (Hullman, 2007). As can be seen below, communicative adaptability was also negatively related to frequent use of computer for social reasons. It is not surprising that communicative adaptability and cognitively flexibility were both negatively related to computing for social reasons as previous research has found the two concepts to be related to each other. In fact, cognitive flexibility is thought to precede or be an antecedent of communicative adaptability (Hullman, 2007). This multifaceted set of relationships adds convergent validity to the notion that computing for social reasons truly is negatively related to both these concepts. However, this finding might have seeds in a set of spurious associations. While it might have seemed more likely (before data was collected and analyzed) that interactive social computer applications would be positively related to adaptability, flexibility, and need for cognition, findings revealed the opposite was the case. This might be due to the fact that all three of these scales (especially communicative adaptability and cognitive flexibility) were designed for face-to-face speaking situations. The affordances of speech and interactive written discourse are similar but also
divergent in many ways. Recent research in the problematic internet use lineage has shown that social anxiety and a lack of social skills in face-to-face situations can be used to explain socially interactive technology use on computers (Caplan, 2007; High & Caplan, 2007) as well as text messaging applications on cell phones (Ishii, 2006).

*Relationships between communicative adaptability and SIT use.* The sixth research question in Study I further sought to unravel the ways competent communication is (or is not) related to SIT use among college students by looking at correlations between communicative adaptability (CA) and media use. Central to the communicative adaptability concept is cross-contextual competence, which forefronts the idea that individuals vary in their ability to perceive situational cues and adapt their social script to that situation (Duran & Kelly, 1985).

Because most SITs allow for the remaking and remixing of texts across a multitude of interactive spaces, it seemed reasonable to expect significant relationships would emerge. However, only one negative significant correlation developed out of a possible twenty; as previously mentioned, comparative use of one’s computer for social purposes was negatively related to communicative adaptability. Perhaps there are other ways to explain this relationship beyond the fact that the communicative adaptability scale was developed for face-to-face speaking situations rather than socio-digital ones.

In addition to positive relationships between communicative adaptability and cognitive complexity (Hullman, 2007), past research has also found communicative adaptability to be positively related to interaction involvement (Duran & Kelly, 1988). Interaction involvement is conceptualized as the degree to which individuals are engaged both cognitively and behaviorally in their discussions with others (Cegala, 1981). Previous research shows interaction involvement is relatively low in SITs when compared to face-to-face situations (Walther & Parks, 2002).
Because socially interactive technologies afford increased social distance as many communicational cues are filtered out of the interaction and because multimodality can pull online communicators’ attention (at least temporarily) away from the interaction, it is fair to theorize interaction involvement is spread thin across digital multi-media. Of course, further research would be necessary to confirm whether or not peoples’ relative interaction involvement can moderate the relationship between communicative adaptability and SIT use.

To this end, the current research only focused on two aspects (appropriate disclosure and articulation) of the communicative adaptability scale. That communicative adaptability was negatively related to use of a computer for social reasons perhaps has to do with the idea that those who enjoy and frequently use a computer for social reason do so to avoid worrying about appropriate disclosure and articulation, meaning those who are high in computing for social reasons engage in this behavior in part because they wish to circumvent articulate and socially appropriate messages. Certainly, these two elements are subverted by many of the affordances of computerized SITs, which encourage playful articulation and word choice. Indeed past research on computer mediated communication shows increased social distance in online social spaces can actually encourage negative, hostile, and inappropriate disclosure (Braithwaite, Waldron, & Finn, 1999) such as “flaming” or verbally harassing other interactants (Finfgeld, 2000; White & Dorman, 2001) and otherwise sending messages people would not typically be comfortable sending in face-to-face situations.

*Relationships between conversational sensitivity and SIT use.* The seventh research question in the first study asked to what extent conversational sensitivity (CS) would be related to college students’ SIT use. As with the previous three predisposition scales, the CS scale was implemented to examine how individual differences in social dexterity and versatility factor into
what social media people choose to use. Results from this investigation reveal that MySpace use was negatively related to conversational sensitivity in two out of the three measures employed to assess media use and liking to read blogs.

Previous research has shown conversational sensitivity to be positively related to people-oriented listening styles, wherein individuals who display this listening style “tend to listen with a concern or awareness for others’ feelings and emotions” (Chesebro, 1999, p. 234). Furthermore, conversational sensitivity has also been associated with communicating for pleasure, affection, and relaxation as well as a strong need for intimacy (Hosman, 1991).

MySpace is perhaps the most website-like of all the SITs analyzed in the current study. While visiting one’s MySpace page certainly has social elements, it also affords users the opportunity to design their own online space (more actively than Facebook) and connect with corporate MySpace pages that include a great deal of audio, video, and interactive informational entertainment. This affordances-based reality suggests those interested in communicating for reasons of affection and intimacy might be less interested in the more impersonal world of MySpace (and to a lesser extent blogs). What goes on in MySpace and blogs is much less conversational and much more like using hyperlinks on more traditional web pages when compared to other SITs.

In MySpace and blogs, less socially skilled communicators might feel a sense of comfort (due to social distance) yet still are afforded the opportunity to stay connected to the world around them. Maybe a particular kind of social computer user has stuck with MySpace when others have fled. Indeed, there is a growing line of research that suggests people who are lonely, depressed, and socially anxious are more likely than healthier individuals to call upon certain forms of interpersonal computer use, often resulting in problematic Internet use (PIU) (see
Caplan, 2007; High & Caplan, 2007; High & Caplan, in press; Thatcher et al., 2008). Perhaps the affordances of these technologies afford an escape from face-to-face communication rather than acting as an online proxy for face-to-face communication as other SITs seem to do. Of course, additional research would be needed to test whether MySpace is somehow a popular yet alternative online space associated with social anxiety and PIU.

*Relationships among communication competence, social cognition, and students’ formal written discourse.* The second hypothesis in Study II predicted students’ scores on four cognitive and communicative predispositions (Cognitive Flexibility, Need for Cognition, Communicative Adaptability, and Conversational Sensitivity) would be positively related to their performance on two writing tasks. This hypothesis was not supported. The results from a series of one-tailed Pearson correlation analyses used to test this hypothesis revealed only 2 out of a possible 48 relationships emerged in the predicted direction. Please note that while the hypothesis uses the term “positive relationship,” in the context of the current study, a negative relationship would signify an association in the predicted direction. First, cognitive flexibility was negatively related to the SIT score on the email and communicative adaptability was negatively related to the formalness score on the letter.

Again, past research shows cognitive flexibility is positively related to communicative adaptability (Hullman, 2007), which makes sense as both scales seek to measure people’s plasticity in communication situations. These results when taken in isolation suggest students who are more cognitively flexible and communicatively adaptable tend to write more socially appropriate formal letters and also tend to adjust their written discourse in accordance with the communication context. This speculative assertion makes even more sense when one considers the variables used to operationalize a unique SIT-orthography in the coding scheme (such as
abbreviations, capitalization errors and the like) are probably the aspect of the coding scheme that most directly measure the transference of language from SITs to formal contexts (or lack thereof). Here we see flexibility was related to a reduction of inappropriately casual and informal SIT usages, suggesting students who were more cognitively flexible also tended to reduce the number of inappropriate/casual SIT-like word usages. Furthermore, cognitive flexibility does not simply measure people’s ability to recognize divergent affordances of various social situations, it also measures willingness to adapt the behavior to the context (Martin & Rubin, 1995). In this sense, students who are more cognitively flexible might have been more willing to adapt to the formal setting fostered by both the set up in a university laboratory setting as well as the writing style required by the tasks and the formal/educational context in which that writing took place.

While the previous two relationships between communication competency and performance on the writing tasks make sound theoretical sense, that communicative adaptability was positively related to score on the grammar (as scores on the CAS went up, grammar mistakes also tended to increase) does not. Indeed, if someone is concerned about the grammatical structure of their messages, then one would think they would also be worried about how our message would be perceived. This unexpected relationship does not make sense considering the specific focus on articulation in the current study and in the communicative adaptability scale, which measures an individual’s ability to clearly express his or her ideas, with particular attention to an individual’s word choice, pronunciation, and grammatical structure within a message (Duran, 1992). Again, it is possible that this negative relationship could be due to the fact that CAS was designed to measure adaptability in face-to-face settings while the current study dealt with written communication. This notion might also be a way to explain why there
were so few relationships between the four competency scales and the writing outcomes submitted by students in Study II.

Regardless of the lack of robust findings, it still makes intuitive and conceptual sense that to be most effective, communicators need to draw on the subtleties of the context of the exchange to formulate appropriate messages. Indeed, one of the main goals of the measurement instrument developed to content analyze students’ writing performance in Study II was to understand how and to what extent students vary in ability to formulate an appropriate message for a particular context. In this study the four predispositions were selected to operationalize students’ varied ability to perform successfully in a variety of communication situations. Certainly demographic indicators and experience with reading and writing will always be salient factors that contribute to students’ writing skills. However, the wide range of responses in Study II (overall writing scores ranged from 5 to 50, $M = 20$, $SD = 8$) indicate students are differentially able to communicate across social situations while other results suggest social media use is a significant, albeit, modest contributor. See Appendix I for a student writing submission that received a particularly high score and one that received a particularly low score. Also see Appendix H, which gives numerous examples of actual student writing collected in Study II. In a following section (Recommendations for Future Research), coverage of an alternative avenue to continue to investigate the notion that communication competency is related to successful cross-situational written discourse skills is discussed.
Challenges and Limitations of the Current Studies

Neither Study I nor Study II was conducted in the absence of challenges and shortcomings; for this reason, the results and conclusions gleaned from this research were limited in a number of ways. First, neither sample was randomly selected, which can negatively affect the generalizability of the results included in these studies. Additionally, in all cases, extra credit was offered for completion of either task, which might have impacted what type of student participated in these studies. That said, as previously discussed, a purposive college student sample makes sense as this group is among the most active users of SITs and is also still developing an approach to writing within an educational setting. Furthermore, the samples were relatively large and taken from a relatively wide-range of college classes. Because of these factors, the samples contained a good mix of academic class ranks; however, the homogeneity of this particular university’s student body limited the studies to mostly white females (especially Study II).

A second limitation particular to the first study is a commonly identified weakness of survey-based research: The dubious validity and reliability of self-report data. This is especially salient in a study that asked students to report their media use frequency, which is thought to be difficult to accurately self-assess (Jordan et al., 2007). To combat this concern, the questionnaire contained three different ways for students to quantify their media use habits. The convergence of these three question structures across a number of the studies’ most central analyses served to reduce the concern regarding participants’ (in)ability to articulate their own media use tendencies. Despite these precautions, results from self-reported media-use data must always be consumed with much circumspection.
A third overall weakness of this research was borne out the experimental nature of the second study. Rather than relying on naturally occurring formal written communication, which would have been difficult to obtain in an ethical and sensitive fashion, the second study depended on two contrived situations that required students to imagine what they might have written if they found themselves in those positions in real life. The fact that the student participants were aware their time in the computer lab was being analyzed (via a screen-recording program) and the quality of their work being assessed, might have led them to act (and write) in more socially desirable ways. In this sense, the affordances of the computer laboratory might have affected students’ written outcomes. Perhaps for that reason, multitasking behaviors were fairly infrequent, especially relative to what might be expected if the students were asked to write these two messages in the comfort and privacy of their dorm rooms or apartments. Instead, the students wrote in a monitored and sterile laboratory environment that was limited to 30 minutes per participant. Additionally, because the students filled out the questionnaire first and then later reported to the computer lab, they were not wholly ignorant of the relationship between the first study, which clearly focused on socially interactive technology use, and the second study, which clearly focused on effective written communication. This time-ordered arrangement might have impacted the form of the students’ final messages. The nature of the second study’s methodology, in addition to the sometimes borderline but still acceptable intercoder reliability alphas and weak (rather than moderate or strong) significant relationships gleaned during data analysis, suggest the results presented above need to be interpreted with caution and applied to the outside world with discretion.

A fourth limitation of the current research also related to the second study’s content analytic coding process. The main researcher acted as the first coder, with two additional coders
each analyzing 30% of the total sample. Although it is a common practice in communication research for the main researcher to act as a coder (Lombard et al., 2002), it is not without its negative effects on the validity and reliability of the research. Acceptable intercoder reliability scores using Krippendorff’s (1980) alpha do, however, suggest the results in this study are not based solely on the human biases of the main researcher but are instead based on explicit conceptual and operational definitions, which controlled assignment of content to definitive categories (Riffe, et al., 1998). That said, researcher bias could have been further reduced by increasing the number of independent coders and the portion of the total sample that was coded by unaffiliated analysts.

A fifth limitation arose out of the four predisposition scales (CSS, CAS, NFC, CFS) selected to operationalize students’ ability to adapt their written communication messages in accordance with the social affordances of a particular communication context. Although past research has often successfully related these predispositions to media use habits and/or observed communication behaviors, the results relating these scales to SIT use were somewhat underwhelming in the current study. Part of the problem might have been due to the fact that three of the four scales were created for spoken, face-to-face communication situations and might not have translated effectively to a study about written digital communication. Furthermore, two scales (CSS and CAS) were implemented in abbreviated forms. Perhaps the complete 36-item CSS and 30-item CAS would have manifested more interesting and significant results than did the abbreviated forms. These shortcomings do not signify a complete lack of utility of the communication competence and social cognition concepts in relation to the SIT/formal written discourse issue, but rather suggest more work is needed to accurately and effectively operationalize these concepts in the form of new predisposition scales.
This dissertation’s sixth limitation grew out of an assumption that was carried into and through the second study and might have negatively affected how the students’ written submissions were scored and interpreted. Specifically, the current research assumed the college students who were sampled would possess generally equivalent sets of computer skills. This assumption, however, proved inaccurate as 6 of the 66 student participants (9%) did not successfully send one of the two formal written messages while working in the computer lab. Because of this assumption, there was no way to codify these students’ unsuccessful submissions relative to the students who successfully sent both email messages. This reality might have skewed the results and led to the omission of meaningful findings regarding the unique nature of those six participants’ unsuccessful communication practices.

Recommendations for Future Research

Although the current research was successful in adding empirical evidence to a mostly unsubstantiated debate, it also brought up many new questions. Based on both the strengths and limitations of these two studies, some recommendations can be made for future research that attempt to look at socially interactive technology use and formal written discourse together. This final section offers some suggestions for the direction future research on SITs and college students’ more formal writing could take.

While the current study worked to take the analysis beyond surface level assessments of the interconnections between socio-digital media use and writing outcomes, further research is needed to tap into the underlying psychological, social, and cultural factors that bind the two phenomena. Conceptually, the idea that people are variously able to communicate competently across emergent media remains attractive but this notion is in need of a more refined operationalization. In this research, four existing scales were truncated and fitted to act as a sort
of proxy for students’ ability to adapt their written communication messages in accordance with a particular communication context. A stand-alone scale that focuses on both flexibility and discriminatory communication abilities and centers around typewritten communication issues unique to SITs would likely render a more meaningful and valid understanding of communicative adaptability and flexibility in those situations.

The theory of affordances (TOA) continues to offer avenues for interested scholars to look at technological tool use in ecological association with their social surroundings and individualized internal differences. While this study was successful in applying the concept of configurations to understand multiple contributing factors at once, future studies should work to look at as many factors at the same time as possible (from demographics to media use to writing skills to communicative adaptability). With increasingly complex statistical analyses in future studies, which could be based on the current exploratory findings, TOA should offer increased elucidation regarding the relationship between SITs and college students’ formal discursive writing practices and advance a theory that holds much potential beyond its current philosophically stagnant status. Additionally, other theoretical lines should continue to be investigated as potentials for adding richness to the SIT/formal discourse complex, perhaps in association with TOA. Some theoretical avenues worthy of possible application include: problematic Internet use (PIU), media systems dependency theory, elaboration likelihood model, the uses and gratifications perspective, and communication rules theory.

One way to move research closer to a stand-alone typewritten communication competency measurement scale and a more meaningful application of TOA (and perhaps other theories), might be to conduct a study under the modes of communication rubric. The modes of communication perspective could be useful to confirm that language on SITs indeed takes the
form that the literature argues it does. At this point the affordances of SITs are theorized more so than they are confirmed by empirical research. This proposed study could use previous studies in the modes of communication lineage (see Boerger, 2005) as a model. Within this framework the functions, principles, and form of language on a number of types of SITs could be compared in an experimental setting to each other as well as to more traditional modes like face-to-face, pen and paper writing, word processing, telephone use, and email. This analysis would not only explicate the ways SITs are similar to each other, but would also clarify the ways language differs from medium to medium. The current study shows that, at least in terms of usage frequency, there is reason to continue to group SITs together but also that blogging is quite distinct from its technological relatives. By grouping them under one catch-all term, researchers are likely oversimplifying the way communication unfolds variously across different spaces on the Internet and mobile media.

In addition to studying the uses and affordances of SITs, future research should also seek to measure whether differing views of what is meant by the term literacy are affecting how people think about media use, reading and writing, and the pedagogical application of both. Certainly the way literacy is defined in the United States is changing based on the emergence of SITs and other societal transformations. The way the NEA (2007) defines literacy in a document honoring books and newspapers (To Read or Not to Read) is resultantly very different from the way cutting edge sociolinguists like those working in New Literacy Studies (Barton & Hamilton, 1998; Cope & Kalantzis, 2000; Street, 1995; Walsh, 2007) and Multiliteracies studies (Matthewman et al., 2004; Semali, 2000) use the term. Semali (2001) argues, “We are being urged to consider a broader conceptualization in which literacy is defined as the ability to function competently in the cultural media context we live in today” (p. 15). Within this
expanded definition, then, literacy can be understood as referring to all genres, discourses, and media within a culture and not simply as a retrieval of rules (i.e., grammatical rules of language) (Semali, 2000). Instead, literacy can potentially be used to describe the retrieval of information and the appropriate deployment of communication messages as constituted by the technological and social affordances of the situation a person finds themself in (Schirato & Yell, 2000).

Again, in ever-burgeoning linguistic circles, the term literacy increasingly includes social and communicational elements but in other realms there is a want to preserve the traditional etymology of the term. This study and others make clear that the way students read and write on the Internet is quite different from the way they are asked to read and write in school and print contexts. Perhaps confusion surrounding the term literacy on the part of teachers and students is contributing to uncertainty about what it means to be a literate citizen in the United States. With studies that focus on the social elements of interactive written discourse in conjunction with attention to cognition and the specific grammars of various media formats, as the current project does, perhaps what is currently viewed as an educational literacy issue by the press and lay people in the public can be recast as a social and psychological phenomena related to mediated communication (Crystal, 2008). To this end, it might be enlightening to conduct a series of in-depth interviews and a follow-up surveys with educators, students, parents, and professionals outside the academy to gauge how literacy is defined, how they believe it unfolds in various mediated situations, and what they feel is expected of a literate person in these overlapping but divergent arenas.

As SITs proliferate, there is evidence these technologies are moving beyond functioning merely as social tools but that they will also increasingly be applied to the classroom and the working world (Herring, 2004). The Assistant Vice President of a Fortune 500 Company who
served as an outside consultant on the coding scheme (see Chapter II) informed the main researcher that his company recently appointed him head of an effort to investigate how Facebook, blogging, and other SITs might be useful for the company to communicate internally and with outside constituents. More research is needed to understand how communication (both successful and unsuccessful) unfolds on SITs in applied corporate settings and in the classroom.

In his recent book, *Txting: The Gr8 Db8*, David Crystal (2008) argues, “If this turns out to be a genuine effect – that text messaging is fostering a reduction in discourse skills – then this is certainly something which needs to be compensated for in classroom activity” (p. 167). In light of the current study, as well as research by Plester et al., (2008) and a doctoral study conducted at The Ohio State University (www.time.com), all of which point to some reduction of discourse skills and/or academic performance in relation to SITs, this type of academic intervention seems warranted. Media literacy might be an area ripe for pedagogical application if it can be extended beyond its current goals of fostering a critical understanding of mass media messages to include the processes and effects of interactive social media use.

It is not only scholars and other adults who are interested in the possible effects SITs are having upon social life in the United States. During the course of the current research, the main researcher was contacted by a high school student writing a paper about the effects of text messaging. Table 4.1 outlines a few of the questions included in the online interview script submitted by the budding communication scholar. Based on apparent student interest and a discernable pedagogical need, future studies should look at ways to apply research findings about SITs and discourse skills in high school and college classrooms as well as arenas outside the academy.
Table 4.1

One High School Student’s Questions about the Effects of Text Messaging

1. What negative effects does text messaging, or "texting," have on teens?
2. Does texting make teens less adept in social situations?
3. Do you believe texting affects one’s ability to utilize correct or proper English?
4. How much time does an average teen spend texting a day?
5. Does texting interfere with one’s ability to focus on a task?
6. Will teens who text lack fundamental social and conversation skills in their future?

Increased applied and theoretical understanding could benefit from building on one of the strengths of the current research. Use of the screen capture program, HyperCam, allowed for the examination of the processes associated with students’ writing as it took place in real time. Much could be gleaned from how students use their computers in their dorm rooms, apartments, and computer labs as they work (and play). Of course ethical treatment of human subjects would need to be fully considered, but an extension of the utility of screen capture programs to look at naturally occurring writing could uncover a great deal about how communication unfolds through use of computers.

The current research was based on the assumption that students would generally display the same computer skills. That nearly 10% of the sampled students did not successfully send at least one of the two formal messages required in Study II, suggests this assumption was erroneous. To avoid this type of shortcoming, future studies might also seek to measure computer skills with screen capture programs to establish a baseline (either in a pretest of a larger study or perhaps as a stand-alone analysis).
A screen capture program might also be beneficial as a means to overcome the thorny issue of establishing causality. The current exploratory study was only able to establish that SIT use was related to formal writing outcomes. Now that this has been tentatively established, future studies should build on these findings through the implementation of a screen capture program to establish a time-ordered sequence that confirms or disconfirms that computers are a causal mechanism, and not simply a contributing factor, affecting written messages. Similarly, future studies should use a stronger manipulation prompt than that which was used in the current study. Fully denying some students the ability to be off-task (by disabling certain programs and/or web access) and fully granting some students the ability to be off-task should clarify the ways multitasking relates to message outcomes.

Future research on SITs and formal written discourse would also benefit from increasingly diverse samples, increased sample sizes, numbers of coders, and relative coding percentages. The current research was limited to well-educated, mostly middle class, mostly white female participants (especially in Study II), an artifact of the sampling frame (a Midwestern university). Future studies should not be limited to purposive samples of college students and should seek to secure random samples of diverse populations, including children, high school students, college-aged people, and adults from a variety of ethnic and economic backgrounds. Increasing the diversity of the sample and the number and diversity of the coders would clarify to what extent current findings were an artifact of the particular people who were non-randomly selected for involvement in this study and allow for more wide-reaching application of the findings with increased certainty that what took place within the confines of the current research would also take place outside those parameters.
Footnotes

1. After examining a series of histograms, box plots, and scatter plots, six subjects with extreme scores on one or more variables were isolated in both distributions (371 subjects in Study I and 60 subjects in Study II). While six subjects in Study I and three in Study II displayed some extreme media use frequencies, only one subject’s responses appeared nearly impossible and particularly extreme when compared to all others’ responses. Participant 0920CO reported that s/he sent and received 1,650 text messages a day. Assuming that student sleeps about eight hours per day that is an average of 103 text messages sent and received per waking hour or about 2 text messages every minute. The 1,650 daily text messages is also 1,100 more texts sent and received per day than the next highest participant in Study II ($M = 113$, $SD = 233$). This unrealistic text messaging frequency in addition to 0920CO’s extreme score for social computer use, which was highest in Study II (360 minutes per day), warranted removal of this participant from data analysis in the second study. When placed among the other 370 participants in the first study, 0920CO’s extreme scores appeared to have a minimal impact on the data, due in part to the larger relative sample in Study I. This was also true of the other five participants who recorded extreme scores in the first study. For this reason all 371 subjects remained in the sample’s distribution during data analysis.

2. For example, take a look at the first line of Table 3.1, which refers to the frequency with which students use their computers for social reasons. At first glance, a SD of 95.89 in relation to a mean value of 106.16 might be cause for further consideration, even alarm. But if the values are converted to hours (rather than minutes), then the $SD$ is about 1.5 and the mean value is about 1.9, hardly reason for concern (Hayes, 2005).
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Appendix A

Bowling Green State University
School of Communication Studies
Media Use Survey

WE ARE INTERESTED IN LEARNING HOW YOU USE VARIOUS FORMS OF MEDIA TO COMMUNICATE. WOULD YOU PLEASE ANSWER THESE QUESTIONS FOR US? YOUR ASSISTANCE IS VERY IMPORTANT. ALL OF YOUR RESPONSES WILL BE CONFIDENTIAL. THANK YOU!

Section 1 – Some Basic Information

Instructions: Please answer the following questions, which ask you to provide some basic information about yourself.

1. Your birth date: _________________

2. Your sex (circle one): Male or Female

3. Your Ethnicity: _______________

4. Your Major: _______________

5. What is your academic class rank? Freshman Sophomore Junior Senior

6. What is your college grade point average (GPA)? ________

7. What was your SAT Critical Reading Score (between 200 and 800)? ________

8. What was your SAT Writing Score (between 200 and 800)? ________

9. What was your SAT Composite Score (between 600 and 2,400)? ________

10. What was your ACT Composite Score (between 1 and 36)? ________

11. Please create a code so that we can keep track of your responses without sacrificing your confidentiality. The code should be six digits. The first four digits should come from the day and month you were born. The last two digits should come from the first two letters of your mother’s maiden name.

   For example, if you were born August 12 and your mother’s maiden name was Jackson, then your code would be 0812JA.

   Your code: ____ ____ ____ ____ ____
Section 1 – Some Basic Information (Continued)

12. Within the past 5 years, did you have to write in a formal way for your job?

   Yes or No

   If yes, how frequently did you write the following:

   memorandums:  ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   letters:        ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   business emails:  ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   reports:       ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   press releases:  ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   news stories:   ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   other:          ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never

   Please explain:

   __________________________________________________________
   __________________________________________________________

13. Within the past 5 years, did you take a class in high school or college where you were required
   you to write?

   Yes or No

   If yes, how frequently did you write the following:

   in-class essays:  ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   short papers:     ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   term papers:      ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   journals:         ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
   discussion questions
      on exams:  ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
      term papers:  ____ every day  ____ 1 or 2 times a week  ____ seldom  ____ never
Appendix B

Section 2 – Media Use

Instructions: Please answer the following questions about your media use.

COMPUTER USAGE

Do you own your own computer? **Yes** or **No**

Do you have Internet access where you live right now? **Yes** or **No**

Compared to other college students you know, how much would you say you use a computer for entertainment purposes (play games, listen to music, watch videos, surf the web)?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

Compared to other college students you know, how much would you say you use a computer for social purposes (instant messaging, Facebook, MySpace, blogging)?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

Compared to other college students you know, how much would you say you use a computer to complete schoolwork?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

Compared to other college students you know, how much would you say you use a computer for entertainment and social purposes while completing schoolwork?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

On an average weekday, how many minutes or hours do you spend using a computer for entertainment?

________________________________
On an average weekend day, how many minutes or hours do you spend using a computer for entertainment?

________________________________

On an average weekday, how many minutes or hours do you spend using a computer for social reasons?

________________________________

On an average weekend day, how many minutes or hours do you spend using a computer for social reasons?

________________________________

On an average weekday, how many minutes or hours do you spend using a computer to complete schoolwork?

________________________________

On an average weekend day, how many minutes or hours do you spend using a computer to complete schoolwork?

________________________________

WORLD WIDE WEB USAGE

Compared to other college students you know, how much would you say you use a computer to surf the World Wide Web?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards surfing the World Wide Web.

_____ I hate it
_____ I dislike it
_____ I am indifferent towards it
_____ I like it
_____ I love it

On an average weekday, how many minutes or hours do you spend using your computer to surf the World Wide Web?

________________________________

On an average weekend day, how many minutes or hours do you spend using your computer to surf the World Wide Web?

________________________________

INSTANT MESSAGING
Do you use instant messaging? **Yes** or **No**

About how long have you been using instant messaging? _____ years

How many different instant messaging accounts do you use? _____ accounts

When you are on your computer how often are you logged on to at least one IM account?

Never               Rarely              Sometimes               Often               All the time

Compared to other college students you know, how much would you say you use a computer for instant messaging?

____ Not at all  
____ Less than other college students  
____ About the same as other college students  
____ More than other college students  
____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards instant messaging.

____ I hate it  
____ I dislike it  
____ I am indifferent towards it  
____ I like it  
____ I love it

On an average weekday, how many minutes or hours are you logged on to an instant messaging account?

________________________________

On an average weekend day, how many minutes or hours are you logged on to an instant messaging account?

________________________________

On an average weekday, how many minutes or hours do you spend actively communicating with instant messaging?

________________________________

On an average weekend day, how many minutes or hours do you spend actively communicating with instant messaging?

________________________________

On average, how many different simultaneous IM conversations would you say you have going during a typical computer session?

______ IM conversations

Please respond to following statement by noting how much you agree with it.

I feel satisfied when I communicate with one person through instant messaging.

Strongly Agree          Agree          Uncertain          Disagree          Strongly Disagree

Please respond to following statement by noting how much you agree with it.

I feel satisfied when I simultaneously communicate with 2-3 people through instant messaging.


Strongly Agree    Agree    Uncertain    Disagree    Strongly Disagree

Please respond to following statement by noting how much you agree with it.
I feel satisfied when I simultaneously communicate with 4 or more people through instant messaging.

Strongly Agree    Agree    Uncertain    Disagree    Strongly Disagree

How often do you hold a single IM conversation when you are not also doing some other online or offline activity?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while studying?
Never    Rarely    Sometimes    Often    All the time

How often do you close all IM applications while studying?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while also carrying on a face-to-face conversation?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while also surfing the World Wide Web?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while also watching television?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while also listening to music?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while also reading for pleasure?
Never    Rarely    Sometimes    Often    All the time

How often do you use IM while also sending a text message on your cell phone?
Never    Rarely    Sometimes    Often    All the time

**BLOGGING**

Do you read any blogs online?  **Yes** or **No**

Compared to other college students you know, how much would you say you use a computer to read blogs?

_____ Not at all
_____ Less than other college students
About the same as other college students
More than other college students
A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards reading blogs.

I hate it
I dislike it
I am indifferent towards it
I like it
I love it

On an average weekday, how many minutes or hours do you spend reading blogs?

On an average weekend day, how many minutes or hours do you spend reading blogs?

Do you write any blogs online? Yes or No

Compared to other college students you know, how much would you say you use a computer to write blogs?

Not at all
Less than other college students
About the same as other college students
More than other college students
A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards writing blogs.

I hate it
I dislike it
I am indifferent towards it
I like it
I love it

On an average weekday, how many minutes or hours do you spend writing blogs?

On an average weekend day, how many minutes or hours do you spend writing blogs?

SOCIAL NETWORKING WEBSITE USAGE

Do you have a Facebook page? Yes or No

Compared to other college students you know, how much would you say you use a computer to be on your Facebook page?

Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards using Facebook.

____ I hate it
____ I dislike it
____ I am indifferent towards it
____ I like it
____ I love it

About how often do you visit your Facebook page on a typical weekday? _____ visits
About how often do you visit your Facebook page on a typical weekend day? _____ visits
About how often do you update your Facebook page on a typical weekday? _____ updates
About how often do you update your Facebook page on a typical weekend day? _____ updates

On an average weekday, how many minutes or hours do you spend on Facebook?
________________________________

On an average weekend day, how many minutes or hours do you spend on Facebook?
________________________________

Do you have a MySpace page?  **Yes** or **No**

Compared to other college students you know, how much would you say you use a computer to be on your MySpace page?

____ Not at all
____ Less than other college students
____ About the same as other college students
____ More than other college students
____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards using MySpace.

____ I hate it
____ I dislike it
____ I am indifferent towards it
____ I like it
____ I love it

About how often do you visit your MySpace page on a typical weekday? _____ visits
About how often do you visit your MySpace page on a typical weekend day? _____ visits
About how often do you update your MySpace page on a typical weekday? _____ updates
About how often do you update your MySpace page on a typical weekend day? _____ updates
On an average weekday, how many minutes or hours do you spend on MySpace?

________________________________

On an average weekend day, how many minutes or hours do you spend on MySpace?

________________________________

TEXT MESSAGING

Do you have a cell phone?  Yes or No

Do you use the text messaging function on your cell phone?  Yes or No

Does your cell phone have an alphabetic keypad that enables easier texting?  Yes or No

Compared to other college students you know, how frequently would you say you send text messages?

Never   Rarely   Sometimes   Often   All the time

Compared to other college students you know, how frequently would you say you receive text messages?

Never   Rarely   Sometimes   Often   All the time

Compared to other college students you know, how much would you say you use a cell phone for text messaging?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards communicating with text messaging.

_____ I hate it
_____ I dislike it
_____ I am indifferent towards it
_____ I like it
_____ I love it

How many of the last ten cell phone communications that you initiated or received were voice calls and how many were text messages?

_____ voice calls  _____ text messages messages (should add up to 10)

About how many text messages do you send on a typical weekday?  _____ messages

About how many text messages do you receive on a typical weekday?  _____ messages

About how many text messages do you send on a typical weekend day?  _____ messages

About how many text messages do you receive on a typical weekend day?  _____ messages
How often do you turn off or silence your cell phone while studying?

Never               Rarely              Sometimes               Often               All the time

TELEVISION

Compared to other college students you know, how much television would you say you watch?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards watching television.

_____ I hate it
_____ I dislike it
_____ I am indifferent towards it
_____ I like it
_____ I love it

On an average weekday, how many minutes or hours of television do you watch?

________________________

On an average weekend day, how many minutes or hours of television do you watch?

________________________

BOOKS

Do you read novels for pleasure?  **Yes** or  **No**

If yes, about how many novels have you read in the past month?  ________ books

If yes, about how many novels have you read in the past year?  ________ books

Compared to other college students you know, how much would you say you read novels for pleasure?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards reading novels.

_____ I hate it
_____ I dislike it
_____ I am indifferent towards it
_____ I like it
_____ I love it
On an average weekday, how many minutes or hours do you spend reading a novel for pleasure?

________________________________

On an average weekend day, how many minutes or hours do you spend reading a novel for pleasure?

________________________________

Do you read non-fiction books for pleasure?  **Yes** or **No**

If yes, about how many non-fiction books have you read in the past month?  __________ books

If yes, about how many non-fiction books have you read in the past year?  __________ books

Compared to other college students you know, how much would you say you read non-fiction books for pleasure?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards reading non-fiction books.

_____ I hate it
_____ I dislike it
_____ I am indifferent towards it
_____ I like it
_____ I love it

On an average weekday, how many minutes or hours do you spend reading non-fiction books for pleasure?

________________________________

On an average weekend day, how many minutes or hours do you spend reading non-fiction books for pleasure?

________________________________

**MAGAZINES**

Do you read magazines?  **Yes** or **No**

Compared to other college students you know, how much would you say you read magazines?

_____ Not at all
_____ Less than other college students
_____ About the same as other college students
_____ More than other college students
_____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards reading magazines.
____ I hate it
____ I dislike it
____ I am indifferent towards it
____ I like it
____ I love it

On an average weekday, how many minutes or hours do you spend reading magazines?
________________________________

On an average weekend day, how many hours do you spend reading magazines?
________________________________

NEWSPAPERS (paper versions only)

Do you ever read the school newspaper?   Yes or No
Do you ever read a local newspaper?      Yes or No
Do you ever read a national newspaper?   Yes or No

Compared to other college students you know, how much would you say you read paper versions of newspapers?

____ Not at all
____ Less than other college students
____ About the same as other college students
____ More than other college students
____ A lot more than other college students

From the following statements, please put a check by the one that best fits your attitude towards reading paper versions of newspapers.

____ I hate it
____ I dislike it
____ I am indifferent towards it
____ I like it
____ I love it

On an average weekday, how many minutes or hours do you spend reading paper versions of newspapers?
________________________________

On an average weekend day, how many minutes or hours do you spend reading paper versions of newspapers?
________________________________
Appendix C

Section 3 – Measures of Communication Predispositions
The next section of the questionnaire asks you questions about yourself and your beliefs.

Section 3, Part 1
Instructions: This instrument is composed of 17 statements concerning your feelings about communication with other people. There are no right or wrong answers.

Please indicate the degree to which each statement applies to you by placing the appropriate number (according to the scale below) in the space provided.

- 5 = Strongly Disagree
- 4 = Disagree
- 3 = Undecided
- 2 = Agree
- 1 = Strongly Agree

___ 1. I often find myself detecting the purposes of what people are saying in conversations.
___ 2. Many times, I pick up from conversations little bits of information that people don’t mean to disclose.
___ 3. I can often understand why someone said something even though others don’t see that intent.
___ 4. In conversations I seem to be able to predict what another person is going to say even before he or she says it.
___ 5. I often hear things in what people are saying that others don’t seem to even notice.
___ 6. I often find hidden meanings in what people are saying in a conversation.
___ 7. I often notice double meanings in conversations.
___ 8. I often have a sense that I can forecast where people are going in conversations.
___ 9. I have the ability to say the right thing at the right time.
___ 10. If people ask me how to say something I can come up with a number of different ways of saying it.
___ 11. I am very good at coming up with cool ways of saying things in conversations.
___ 12. I am good at wording the same thought in different ways.
___ 13. In virtually any situation I can think of tactful ways to say something.
___ 14. In group interactions, I’m not good at determining who the leader is in the conversation.
___ 15. I’m often able to figure out who’s in charge in conversations.
___ 16. Most of the time, I’m able to identify the dominant person in a conversation.
___ 17. I can often tell when someone is trying to get the upper hand in a conversation.

Section 3, Part 2
Instructions: The following are statements about communication behaviors. Answer each item as it relates to your general style of communication (the type of communicator you are most often) in social situations.

Please indicate the degree to which each statement applies to you by placing the appropriate number (according to the scale below) in the space provided.

- 5 = always true of me
- 4 = often true of me
- 3 = sometimes true of me
- 2 = rarely true of me
- 1 = never true of me

___ 1. I am aware of how intimate my disclosures are.
___ 2. I am aware of how intimate the disclosures of others are.
___ 3. I disclose at the same level that others disclose to me.
___ 4. I know how appropriate my self-disclosures are.
___ 5. When I self-disclose I know what I am revealing.
___ 6. When speaking I have problems with grammar.
___ 7. At times I don’t use appropriate verb tense.
___ 8. I sometimes use one word when I mean to use another.
___ 9. I sometimes use words incorrectly.
___ 10. I have difficulty pronouncing some words.

Section 3, Part 3
Instructions: The following statements deal with your beliefs and feelings about your own behavior. Read each statement and respond by circling the number that best represents your agreement with each statement.

6 = Strongly Agree
5 = Agree
4 = Slightly Agree
3 = Slightly Disagree
2 = Disagree
1 = Strongly Disagree

___ 1. I can communicate an idea in many different ways.
___ 2. I avoid new and unusual situations.
___ 3. I feel like I never get to make decisions.
___ 4. I can find workable solutions to seemingly unsolvable problems
___ 5. I seldom have choices when deciding how to behave.
___ 6. I am willing to work at creative solutions to problems.
___ 7. In any given situation, I am able to act appropriately.
___ 8. My behavior is a result of conscious decisions that I make.
___ 9. I have many possible ways of behaving in any given situation.
___ 10. I have difficulty using my knowledge on a given topic in real life situations.
___ 11. I am willing to listen and consider alternatives for handling a problem.
___ 12. I have the self-confidence necessary to try different ways of behaving.

Section 3, Part 4
Instructions: For each of the statements below, please indicate the degree to which each statement is characteristic of you by placing the appropriate number (according to the scale below) in the space provided.

5 = extremely characteristic
4 = somewhat characteristic
3 = uncertain
2 = somewhat uncharacteristic
1 = extremely uncharacteristic

___ 1. I would prefer complex to simple problems.
___ 2. I like to have the responsibility of handling a situation that requires a lot of thinking.
___ 3. Thinking is not my idea of fun.
___ 4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
___ 5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
___ 6. I find satisfaction in deliberating hard and for long hours.
___ 7. I only think as hard as I have to.
___ 8. I prefer to think about small, daily projects to long-term ones.
___ 9. I like tasks that require little thought once I’ve learned them.
___ 10. The idea of relying on thought to make my way to the top appeals to me.
___ 11. I really enjoy a task that involves coming up with new solutions to problems.
___ 12. Learning new ways to think doesn’t excite me very much.
___ 13. I prefer my life to be filled with puzzles that I must solve.
___ 14. The notion of thinking abstractly appeals to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.

17. It’s enough for me that something gets the job done; I don’t care how or why it works.

18. I usually end up deliberating about issues even when they do not affect me personally.
Appendix D

**Study II Laboratory Stimuli 1 (Text from PowerPoint slides)**

**Introduction**

There are two parts to be completed for this 30-minute laboratory exercise.

**Settle In…**

Please, feel free to use the computer as you would any other campus computer—in other words, you can check your email, surf the internet, open IM windows, do whatever you might do when you have a few minutes to go online. Just be your normal computational self!

**Part 1**

Imagine that you have just missed an important class for a course in your major. You missed it because you didn’t feel well or had something important to attend to that could not wait. No biggie, right? But imagine a friend who is also taking the class tells you that a new and important assignment was distributed on the day you missed. Your friend also tells you that the first portion of the assignment was completed during the class period you missed. OOOPS!

Please send an email message to that course’s professor about the possibility of making up the missed work. Let’s call the professor Dr. K. Please send the email to doctork16@gmail.com.

**Part 2**

Imagine that you have just come across a job listing for an internship that would be a good fit for your current course work and future career plans. It pays pretty well too ($$$).

Please write a letter of interest in reference to the job listing. The job listing is presented on the next slide. Upon completion of your letter of interest please send a second email with that letter attached to: companyq12@gmail.com.
Job Listing

We are looking for an energetic and well-rounded college student with exactly your skill set (please detail your skill set in your letter) to join our growing department in Company Q, which was recently rated one of the Top 100 places to work by HotJobs.com.

Our address is:

Company Q
333 West Street
Cool Town, OH 45444

Job Reference Number: 9822LFQ

Please send a letter of interest detailing your previous work experience and why you would be a good fit for this position. Please send the letter to Larry Fitzpatrick at companyq12@gmail.com.

Lastly…

To review: 1. Chill, relax, and settle in to your computational self. 2. Send an email to your professor. 3. Write a cover letter and send it to a potential employer.

Now, I will get out of your way and you can get started!
Appendix E

Study II Laboratory Stimuli 2 (Text from PowerPoint slides)

Introduction

There are two parts to be completed for this laboratory exercise.

Part 1

Imagine that you have just missed an important class for a course in your major. You missed it because you didn’t feel well or had something important to attend to that could not wait. No biggie, right? But imagine a friend who is also taking the class tells you that a new and important assignment was distributed on the day you missed. Your friend also tells you that the first portion of the assignment was completed during the class period you missed. OOOPS!

Please send an email message to that course’s professor about the possibility of making up the missed work. Let’s call the professor Dr. K. Please send the email to doctork16@gmail.com.

Part 2

Imagine that you have just come across a job listing for an internship that would be a good fit for your current course work and future career plans. It pays pretty well too ($$$). Please write a letter of interest in reference to the job listing. The job listing is presented on the next slide. Upon completion of your letter of interest please send a second email with that letter attached to: companyq12@gmail.com.

Job Listing

We are looking for an energetic and well-rounded college student with exactly your skill set (please detail your skill set in your letter) to join our growing department in Company Q, which was recently rated one of the Top 100 places to work by HotJobs.com.
Our address is:

    Company Q

    333 West Street

    Cool Town, OH 45444

Job Reference Number: 9822LFQ

Please send a letter of interest detailing your previous work experience and why you would be a good fit for this position. Please send the letter to Larry Fitzpatrick at companyq12@gmail.com.

Lastly…

To review: 1. Send an email to your professor. 2. Write a cover letter and send it to a potential employer.

Now, I will get out of your way and you can get started!
Appendix F

Study II Code Book – The Writing

Part 1. Coding Scheme for the Letters to Company Q

Section 1. The Basics

V1.1.1. Did the participant successfully send an email to Company Q?

0 = Yes
1 = No

V1.1.2. Were both the email and letter attachment handled appropriately?

0 = Email included: a salutation, a brief and polite statement pointing Company Q and/or Larry Fitzpatrick to an attached letter, a closing statement, and was free from any grammatical errors
1 = Email included some text and an attached letter but lacked one of the other above elements
2 = Email included some text and an attached letter but lacked more than one of the above elements
3 = Sent letter as attachment but there was no text at all in body of email
4 = Sent letter in body of email

V1.1.3. Total for Part 1, Section 1 – Just add up variables 1 and 2.

Section 2. Formalness and Formatting Variables

V1.2.1. Did the email include an appropriate/useful subject in the subject line?

0 = Yes
1 = Included a subject but it was somehow inappropriate (too brief, not explanatory, rude, included a grammatical error – “Missed today’s class”)
2 = Did not include a subject in the subject line

V1.2.2. Did the participant include a salutation in the letter?

0 = Yes, included both name and greeting term (such as: Hello, Dear, Hi) or “To Whom It May Concern”
1 = Just a name or just a greeting term
2 = No, neither greeting nor name is included

V1.2.3. Did the participant include a closing in the letter?

0 = Yes, included both a name and a parting statement (such as: Sincerely, Thank You)
1 = Just a name or just a parting statement
2 = No, neither parting statement nor name

V1.2.4. Was the letter in standard letter format? (see attachment for appropriate format)

0 = Yes, letter followed standard letter format completely
1 = An attempt was made at formatting the document as a letter but one or more elements of the standard letter format were missing or fell short in some way
2 = No, letter did not follow standard letter format at all
V1.2.5. Did the participant include the job reference number somewhere in the email or letter?

0 = Yes
1 = No

V1.2.6. Did the participant include the contact person’s name (Larry Fitzpatrick) somewhere in the email or letter?

0 = Yes
1 = No

V1.2.7. Did the participant include their first and last name and contact information (email, phone number or address) somewhere in the letter?

0 = Yes
1 = Did not include one of the two (full name or contact information are missing)
2 = Did not include either one of the two (full name and contact information are missing)

V1.2.8. Did the participant use paragraphs appropriately?

0 = Yes, the letter is broken up into reasonable/readable paragraphs
1 = No, the letter is all one paragraph, two large paragraphs (that probably should have been broken up) or is not at all in a paragraph form (i.e., bullets, list of skills)

V1.2.9. Is the length of the letter appropriate? Appropriate length is about three to six paragraphs and/or between a half-page and a full-page. Too long would ask too much time of the recipient in HR at Company Q. Too short would be a slap in the face, too curt and/or insufficient explication of why Company Q should grant this participant further consideration.

0 = Yes, the length is appropriate
1 = No, it is too long or too short

V1.2.10. Did the participant include details about their job-related skills, their previous relevant work experience and/or why they would be a good fit for the position?

0 = Yes, the participant included a discussion of these elements
1 = Yes, the participant included a discussion of these elements but did so minimally or superficially (they mailed it in or made a weak attempt)
2 = No, the participant did not include any discussion of these elements

V1.2.11. Did the participant use an appropriate tone of voice, language, and word choice for a business letter? Or were there instances of informal or inappropriate language?

0 = Yes, the letter was appropriate in tone, language, and word choice
1 = No, the letter contained one or more instance of inappropriate tone, language, and/or word choice

V1.2.12. Total for Part 1, Section 2 – Just add up variables 1 through 11.

V1.2.13. How many formalness mistakes did you count in variables 1 through 11?

0 = 0 mistakes
1 = 1 – 3 mistakes
2 = 4 – 7 mistakes
3 = 8 – 11 mistakes
4 = 12 or more mistakes
Section 3. SIT Related Components

C1.3.1. Did the participant include any intentional misspellings to save time or for effect?
   Specifically, did the participant include any acronyms?
Examples include but are not limited to: lol, omg, gtg, idk.
   Specifically, did the participant include any letter homophones?
Examples include but are not limited to: CUL8R, RU 4 sure
   Specifically, did the participant include any colloquial, phonetic or deviant spellings? Examples include but
   are not limited to: fx = effects, thru = through, cos = because, w/ = with

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.2. Did the participant include any other abbreviations, examples of online shorthand or other intentional
   misspellings for reasons of brevity or minimizing keystrokes that are not covered in the previous variable?
Did they abbreviate when they should have typed out the whole word?

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.3. Did the participant misuse uppercase or lowercase lettering?
For example, did they include all caps for emphasis (I am SO SORRY!)? Did they include lowercase for
   inappropriate de-emphasis (i can’t figure out why company q would even care.)? Include all misuses of
   capitalization, not just the two examples above.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.4. Did the participant use any emoticons or letter/symbol pictures?
Examples include but are not limited to: ☺ / ! :-) )

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.5. Did the participant include reduplicated letters for emphasis?
Examples include but are not limited to: The printer and mail systems are sooooooooo slow that I decided to send
   the letter via email.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.6. Did the participant inappropriately use periods, hyphens, ellipses or other symbols as a conversation break
   or subject break?
Examples include but are not limited to: I am interested in the position at Company Q…it would be great to work
   there. I would like to be considered for the position -- I am a great fit for a number of reasons.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)
C1.3.7. Did the participant leave any words out (especially pronouns) that should not be excluded from formal writing?
Examples include but are not limited to: Inappropriate: Just keeping you informed of my situation. Appropriate: I am just keeping you informed of my situation.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.8. Did the participant include any slang, obscenities or other particularly informal word choices?
Examples include but are not limited to: School sucks so I just want to graduate and get a job. I’ve been bank rollin all I could but I still need some extra dough. I look forward to hearing from you but if I don’t, it’s all good. Even, Thanks! would be too informal for a business letter.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.9. Did the participant use contractions when they should have left it as two words?
Examples include but are not limited to: I’m writing you today regarding the position at Company Q. I hope it’s not too late. I’d like the job but I’m not sure I’m qualified.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.10. Did the participant include any inappropriate use of symbols (other than emoticons or examples covered in previous variables)?
Examples include but are not limited to: I have a # of skills that would make me a good fit for Company Q. I aim to make a lot of $$ when I graduate.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C1.3.11. This is an “Other” variable. Did the participant include any other instances of casual or speech-like language usages or examples that resemble a “transcription of speech” or graphical devices that contribute to the impression that the text is being spoken (rather than written in a formal way) not covered in the previous ten variables?

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)
Please also list those instances in the space provided on the code sheet.

V1.3.1. Total for Part 1, Section 3 – Just add up number of instances in variables 1 through 11.

V1.3.2. How many SIT related instances did you count in components 1 through 11?

0 = 0 instances
1 = 1-2 instances
2 = 3-4 instances
3 = 5 or more instances
Section 4. General Grammar Variables (not included in SIT variables)

V1.4.1. How many grammatical mistakes (not covered in Section 3) did you find in the letter?

Examples of grammatical mistakes include but are not limited to: run-on sentences, sentence fragments, comma splices, missing commas, misspellings, verb agreement problems, tense problems, punctuation issues not included in Section 3 or related to language typical of SITs.

Also included here are issues of clarity, examples of a complete lack of comfort with written English, awkward or jumbled wording, incorrect word usages or particularly odd word choices.

0 = 0 mistakes
1 = 1 – 4 mistakes
2 = 5 – 8 mistakes
3 = 9 – 12 mistakes
4 = 13 or more mistakes

Example: If you found three mistakes you would code as follows:

Place a “1” in the V1.4.1 blank.

Include this type of description in the spaces below the V1.4.1 blank (and on back as needed)
1. In paragraph 1, line 2, misspelled “article” as “artcle”
2. In paragraph 2, lines 3 through 7 included a run-on sentence
3. In paragraph 4, line 10 used both past and present tense to refer to the same instance

Section 5. Final Assessment of the Letter

V1.5.1. Did the letter achieve its purpose as a beneficial representation of the participant? In other words, was the letter generally well written, clear, and a document likely to make a good first impression?

0 = Yes, this was a good letter. If I were working in HR for Company Q it would intrigue me and cause me to further investigate this participant as an option for the position (i.e., take a look at the resume, call references, ask for more materials etc)
1 = The letter was OK. There were a few minor problems but if I were working in HR for Company Q it would not stop me from looking at this participant as a possible option for the position
2 = No, this was not a good letter. The participant did not do enough to make this seem like a real effort or a sound attempt at a actual letter of interest

Part 2. Coding Scheme for the Emails to Dr. K

Section 1. The Basics

V2.1.1. Did the participant successfully send an email to Dr. K?

0 = Yes
1 = No
Section 2. Formalness and Formatting Variables

V2.2.1. Did the email include an appropriate/useful subject in the subject line?

0 = Yes
1 = Included a subject but it was somehow inappropriate (too brief, not explanatory, rude, included a grammatical error – “Missed todays class”)
2 = Did not include a subject in the subject line

V2.2.2. Did the participant include a salutation in the email?

0 = Yes, included both name and greeting term (such as: Hello, Dear, Hi)
1 = Just a name or just a greeting term
2 = No, neither greeting nor name is included

V2.2.3. Did the participant include a closing in the email?

0 = Yes, included both a name and a parting statement (such as: Sincerely, Thank You)
1 = Just a name with no parting statement
2 = No, neither parting statement nor name

V2.2.4. Did the participant include their first and last name somewhere in the email?

0 = Yes
1 = Included a name but not both first and last names
2 = No name at all

V2.2.5. Did the participant specify which class they are taking with Dr. K, either by time (I am in your Tu/Tr class) or section (I am in your IPC 102 class)?

0 = Yes
1 = No

V2.2.6. Did the participant specify what day they missed the class, either by day of the week (I missed class on Monday or I missed class today) or by date (I missed class on January 26)?

0 = Yes
1 = No

V2.2.7. Did the participant say why they missed the class (sick, family emergency, work conflict etc)?

0 = Yes
1 = No

V2.2.8. Did the student specifically ask about making up the missed work?

0 = Yes
1 = No

V2.2.9. Is the length of the email appropriate? Too long would be multiple paragraphs or one long paragraph (6 or more lines) that includes much more information than is necessary and would ask too much time of Dr. K. Too short would be a slap in the face, too curt and/or insufficient explication as to why Dr. K should help this student make up the missed work.

0 = Yes
1 = No, it was too long or too short
V2.2.10. Did the participant use an appropriate tone of voice, language, and word choice for an email to a professor? Or were there instances of informal or inappropriate language? Specifically, did the participant use language that was too demanding, rude or showed signs of an overactive sense of entitlement?

0 = Yes, the email was appropriate in tone, language, and word choice
1 = No, the email contained one or more instance of inappropriate tone, language, and word choice

V2.2.11. Total for Part 2, Section 2 – Just add up variables 1 through 10.

V2.2.12. How many formalness mistakes did you count in variables 1 through 10?

0 = 0 mistakes
1 = 1 – 3 mistakes
2 = 4 – 7 mistakes
3 = 8 – 11 mistakes
4 = 12 or more mistakes

Section 3. SIT Related Components

C2.3.1. Did the participant include any intentional misspellings to save time or for effect? Specifically, did the participant include any acronyms? Examples include but are not limited to: lol, omg, gtg, idk. Specifically, did the participant include any letter homophones? Examples include but are not limited to: CUL8R, RU 4 sure. Specifically, did the participant include any colloquial, phonetic or deviant spellings? Examples include but are not limited to: fx = effects, thru = through, cos = because, w/ = with

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.2. Did the participant include any other abbreviations, examples of online shorthand or other intentional misspellings for reasons of brevity or minimizing keystrokes that are not covered in the previous variable? Did they abbreviate when they should have typed out the whole word?

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.3. Did the participant misuse uppercase or lowercase lettering? For example, did they include all caps for emphasis (I am SO SORRY!)? Did they include lowercase for inappropriate de-emphasis (i can’t figure out why company q would even care.)? Include all misuses of capitalization, not just the two examples above.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.4. Did the participant use any emoticons or letter/symbol pictures? Examples include but are not limited to: 😊 😎 ! ) :-)

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)
C2.3.5. Did the participant include reduplicated letters for emphasis? 
Examples include but are not limited to: The printer and mail systems are sooooooooo slow that I decided to send the letter via email.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.6. Did the participant inappropriately use periods, hyphens, ellipses or other symbols as a conversation break or subject break? 
Examples include but are not limited to: I am interested in the position at Company Q… it would be great to work there. I would like to be considered for the position -- I am a great fit for a number of reasons.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.7. Did the participant leave any words out (especially pronouns) that should not be excluded from formal writing? 
Examples include but are not limited to: Inappropriate: Just keeping you informed of my situation. Appropriate: I am just keeping you informed of my situation.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.8. Did the participant include any slang, obscenities or other particularly informal word choices? 
Examples include but are not limited to: School sucks so I just want to graduate and get a job. I’ve been bank rollin all I could but I still need some extra dough. I look forward to hearing from you but if I don’t, it's all good.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.9. Did the participant use contractions when they should have left it as two words? 
Examples include but are not limited to: I’m writing you today regarding the position at Company Q. I hope it’s not too late. I’d like the job but I’m not sure I’m qualified.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.10. Did the participant include any inappropriate use of symbols (other than emoticons or examples covered in previous variables)? 
Examples include but are not limited to: I have a # of skills that would make me a good fit for Company Q. I aim to make a lot of $$ when I graduate.

0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc)

C2.3.11. This is an “Other” variable. Did the participant include any other instances of casual or speech-like language usages or examples that resemble a “transcription of speech” or graphical devices that contribute to the impression that the text is being spoken (rather than written in a formal way) not covered in the previous ten variables?
0 = No
1 = Yes
If Yes, please include number of instances (1, 2, 3, 4, etc).
Please also list those instances in the space provided below.

**V2.3.1.** Total for Part 2, Section 3 – Just add variables 1 through 11.

**V2.3.2.** How many SIT related instances did you count in components 1 through 11?

0 = 0 instances
1 = 1-2 instances
2 = 3-4 instances
3 = 5 or more instances

**Section 4. General Grammar Variables (not included in SIT variables)**

**V2.4.1.** How many grammatical mistakes (not covered in Section 3) did you find in the email?

Examples of grammatical mistakes include but are not limited to: run-on sentences, sentence fragments, comma
splices, missing commas, misspellings, verb agreement problems, tense problems, punctuation issues not included in
Section 3 or related to language typical of SITs.

Also included here are issues of clarity, examples of a complete lack of comfort with written English, awkward or
jumbled wording, incorrect word usages or particularly odd word choices.

0 = 0 mistakes
1 = 1 – 2 mistakes
2 = 3 – 4 mistakes
3 = 5 or more mistakes

Example: If you found three mistakes you would code as follows:

Place a “2” in the V2.4.1 blank.

Include this type of description in the spaces below the V2.4.1 blank (and on back as needed)
1. In line 2, misspelled “article” as “artcle”
2. In lines 3 through 7, included a run-on sentence
3. In line 7, used both past and present tense to refer to the same instance

**Section 5. Final Assessment of the Email**

**V2.5.1.** Did the email achieve its purpose as a beneficial representation of the participant? In other words, was the
e-mail generally well written, clear, and likely to make a good impression on a professor? Would you allow the
student to make up the missed work?

0 = Yes, this was a good email. If I were Dr. K, I would let the student make up the work.
1 = The email was OK. There were a few minor problems but if I were Dr. K it would not stop me from
working with this student on making up the missed work
2 = No, this was not a good email. The participant did not do enough to make this seem like a real effort
or a sound attempt to make up the missed work
Part 3. Overall Total Variable

Total. Overall Total Variable for the letter and email combined

Simply sum the totals from the following variables: V1.1.3; V1.2.12; V1.3.1; V1.4.1; V1.5.1; V2.1.1; V2.2.11; V2.3.1; V2.4.1; V2.5.1.
**Keys to achieving the standard:** 1. both return and forwarding addresses, 2. salutation and parting statement, 3. date, 4. has the look and the feel of a letter (paragraphs, length, spacing). Placement of addresses is less important than that they are there.

Jacob S. Turner  
School of Communication Studies  
Bowling Green State University  
302 West Hall  
Bowling Green, OH 43403  
jacobst@bgsu.edu; 302-983-1976

January 8, 2009

Mary Anne Trasciatti, Ph.D.  
Associate Professor; Chair  
Speech Communication, Rhetoric & Performance Studies  
Hofstra University

Dear Dr. Trasciatti,

This letter is to inform you that I wish to be considered for the Assistant Professor position in the Department of Speech Communication, Rhetoric and Performance Studies at Hofstra University. My projected doctoral graduation date is summer 2009 and, based on my extensive educational and research experience in mediated political communication and communication and culture, in addition to my continued interest in teaching and working with college students, I believe I am an excellent candidate for the position.

In terms of my own professional scholarly experience as both a teacher and a researcher, I feel I am a good fit for your department. As a Communication scholar, I take a social scientific approach to the study of mediated interpersonal, intercultural, and political communication with an auxiliary yet robust interest in popular culture.

I also plan to extend another project with a popular culture tie-in: my award-winning research that examined the effects of ESPN’s corporate structure on content found on ESPN’s flagship program *SportsCenter* and sister cable channel ESPNNEWS. As I have a large set SportsCenter episodes from 1999 on tape I plan to carry out a longitudinal content analysis that spans ten years of the popular sports news and entertainment program.

In addition to this letter, I have attached a current curriculum vitae and the names and contact information of five references. If you should need anything else, such as a packet providing evidence of my teaching excellence, please do not hesitate to contact me by phone or email. I look forward to hearing from you.

Sincerely,

Jacob S. Turner
Appendix G

Study II Code Book – The Video

A. Multitasking Behaviors

VA.1. Was the participant given Stimulus 1 or Stimulus 2?

1 = Stimulus 1
2 = Stimulus 2

Stimulus 1 included the following manipulation prompts while Stimulus 2 did not.

“Settle in…Please, feel free to use the computer as you would any other campus computer. In other words, you can check your email, surf the internet, open IM windows, do whatever you might do when you have a few minutes to go online. Just be your normal computational self!”

And

“To review: 1. Chill, relax, and settle in to your computational self.”

VA.2. How many programs did the participant use in addition to PowerPoint, Word, and one Internet Browser?

VA.3. How many functional websites did the participant visit that were related to successfully completing the email to the professor or the letter of interest?

VA.4. How many dysfunctional websites did the participant visit that were wholly unrelated to completing the email to the professor or the letter of interest and were more for own entertainment and general web surfing?

VA.5. This is an “Other” variable. How many other off-task behaviors did the participant enact?

For example, if the participant read or wrote emails unrelated to the study during the 30 minutes it would be coded here.

A second example might be opening up a tab within a web browser that was used for off-task multitasking behaviors.

A third example would be watching videos on a website like perezhilton.com.

VA.6. Total time spent off-task as a result of multitasking and concurrency behaviors.

Simply keep track of how long a participant spends with dysfunctional websites (VA.4.) and on other off-task behaviors (VA.5.).

For example, if a participant spends 8 minutes on other websites (VA.3.) and 5 minutes checking personal email (VA.4.), then their total for VA.5. would be 13 minutes.

B. Total Time Spent On Computer

VB.1. How many minutes did the participant spend actively using the computer (on-task and off-task)?
Appendix H

Coding Example

The purpose of this appendix item is to explicate how coding decisions were made by coders for each variable in the analysis.

Actual Participant’s Submission:

The following is a submission written by participant 1205FE. This submission was coded by all three coders as it was randomly selected for the reliability sample.

Part 1: The Letter of Interest

Email subject line: Internship opportunity

Email body:

Note: The letter was not attached but was written in body of email.

Participant’s Name
555 Klotz Rd, Bowling Green, OH 43403
participant@gmail.com, 555.555.2555

01/19/09
Larry Fitzpatrick
Director of Human Resources
Company Q
333 West Street
Cool Town, OH 45444

Dear Mr. Fitzpatrick,

My name is 1205FE and I’m writing to you in regards to the internship listed on hotjobs. After reading and examining Company Q I really believe I would be a great asset the company.

I graduate from Bowling Green State University in May of 2009, with a degree in Journalism and two minors, one in Spanish and the other in Marketing. During my time and BGSU I have not only excelled academically by maintaining a 3.5 GPA, I have also learned how to manage time between academics, community service and with my secretary position within the Public Relation Student Society of America.

I would really like to learn more about Company Q and the possibilities of being a potential employee.

Thank you for you time and I look forward to speaking with you.
Coding Process for Each Variable in Part 1 (The Letter of Interest)

Section 1. The Basics

V1.1.1. Did the participant successfully send an email to Company Q?

Here, the coders were asked to check if the email made it to the appropriate email address for Company Q. Six of the 132 emails sent by the participants in Study II never made it to the appropriate email inbox.

Because 1205FE’s email was sent to the correct address for Company Q, all three coders recorded a “0”: Yes, the participant successfully sent an email to Company Q.

V1.1.2. Were both the email and letter attachment handled appropriately?

Here, coders were asked to choose between five options (see Appendix F for exact choices) regarding how the email and letter were presented to Company Q.

In this case, participant 1205FE did not attach the letter as requested in the “Job Listing” given in the PowerPoint instructions (Appendix D). For this reason, all three coders recorded a “4”: Sent letter in body of email.

V1.1.3. Total for Part 1, Section 1.

Here, coders were instructed to simply add up the totals for the previous two variables. In this case that was “0 + 4 = 4”. For this reason, all three coders recorded a “4” for this variable.

Section 2. Formalness and Formatting Variables

V1.2.1. Did the email include an appropriate/useful subject in the subject line?

For this variable, coders were asked to look at the subject line in the email to see if was useful, descriptive, and appropriate for the current task.

Coding notes taken down by coders during training sessions included:

1. Minimal is sufficient, i.e., “Job Listing” is acceptable.

2. Don’t worry about caps in subject line.

Participant 1205FE wrote “Internship opportunity” in the email subject line. The second and third coders recorded a “0”: Yes, the email subject line was appropriate, useful, and/or descriptive enough. The
first coder (i.e., the main researcher) was unsure whether the other coders would find this subject to be descriptive enough, so he recorded a “—”, which essentially means he did not record any code here. This is common in content analyses, especially those that use Krippendorff’s Alpha as the intercoder reliability statistic. The alpha calculations ignore non-codes like this one and compare only codes that are present. In this case, both the second and third coder recorded the same score, thus there was 100% agreement on this variable for this subject.

**V1.2.2. Did the participant include a salutation in the letter?**

For this variable, coders were asked to determine if the participant included a complete salutation (name and greeting term), just a name or just a greeting term, or neither a greeting term nor a name.

Coding notes taken down by coders during training sessions included:

1. Even if the letter is in the body of the email, code it as a letter and look for a salutation.

2. Examples of acceptable salutations:
   
   “Dear Larry Fitzpatrick”
   
   “To whom it may concern”
   
   “Dear Company Q”
   
   “To the Associates of Company Q”

3. Don’t worry about capitalization issues in the salutation for this variable. That is coded later in the SIT variables (Section 3).

Participant 1205FE wrote: “Dear Mr. Fitzpatrick,”. All three coders recorded a “0” for “Yes, the subject included both a name and greeting term”. See Appendix F for the other possible codes in this variable.

**V1.2.3. Did the participant include a closing in the letter?**
Here, coders were asked to determine if the participant included a complete closing (name and parting statement), just a name or just a parting statement, or neither a parting statement nor a name.

Coding notes taken down by coders during training sessions included:

1. Even if the letter is in the body of the email, code it as a letter and look for a closing.
2. “Thank you for your time,” is acceptable. We had this parting statement in the pilot test and it was not coded reliably so we made a decision about it (and statements like it) and then applied this decision to the actual data set.

Participant 1205FE wrote: “Thank you for your time and I look forward to speaking with you.” There was no other parting statement or name at the end of the letter. For this reason, all three coders recorded a “2” for “No, neither a parting statement nor name”.

Coders were looking for something more like the following for an error-free closing:

“Sincerely, --OR-- “Thank you, Participant’s name” Participant’s name”

V1.2.4. Was the letter in standard letter format?

In this variable coders were asked to judge whether the student achieved the look and the feel of a business letter. An example was given for coders to reference at the end of the coding scheme, which included a note about the essential elements for achieving that standard (See Appendix F).

Coding notes taken down by coders during training sessions included:

1. Must have date, return address etc (see example at end).
2. For code “1”, which was the middle code (not a perfectly standardized letter but not a complete failure in achieving the standard), coders noted, “i.e., looks more like a letter than email (if it’s in an email and not attached)”.
3. For code “2”, which was the code for “No the letter did not follow standard letter format at all”, coders noted, “i.e., just a paragraph, not a letter at all”.
Participant 1205FE did a relatively good job of achieving the business letter standard but lacked one or two key elements. This student’s letter looked more like a letter than an email but because it did not complete the “look and the feel of letter” to perfection, all three coders recorded a “1”.

V1.2.5. Did the participant include the job reference number somewhere in the email?

In this variable, coders were asked to scan the letter to see if the participant included the job reference number (9822LFQ), which was included in the “Job Listing” given in the PowerPoint instructions (Appendix D).

Participant 1205FE did not include the job reference number, therefore, all three coders recorded a “1”, meaning no job reference number was included.

V1.2.6. Did the participant include the contact person’s name somewhere in the email or letter?

Here, coders were asked to scan the letter to see if the participant included the name Larry Fitzpatrick, which was included in the “Job Listing” given in the PowerPoint instructions (Appendix D).

Coding notes taken down by coders during training sessions included:

1. Mr. Fitzpatrick is acceptable.

Subject 1205FE included both the contact person’s full name and “Mr. Fitzpatrick”. For this reason, all three coders recorded a “0”, meaning, yes, the contact person’s name was included.

V1.2.7. Did the participant include their first and last name and contact information (email, phone number or address) somewhere in the letter?

In this variable, coders were asked to scan the letter to see if the student included their contact information.

Subject 1205FE included a street address, an email address and a phone number. For this reason, all three coders recorded a “0”, which means the subject did include a way for Company Q to get back to them.
V1.2.8. Did the participant use paragraphs appropriately?

Here, coders were asked to determine if the participant broke up the letter into easy-to-read paragraphs or if the letter was sent in all one paragraph, two large paragraphs or in non-paragraph form (i.e., bulleted list).

Coding notes taken down by coders during training sessions included:

1. For code “0”, which reads “Yes, the letter is broken up into reasonable/readable paragraphs”, coders noted that for this code to be recorded, the paragraph structure should be like a letter, i.e., 3-5 paragraphs (not 1 or 2), 2-4 lines each (not so many lines that it is hard to read).

Participant 1205FE used a somewhat unorthodox paragraph structure but within the general confines of this variable there were no discernable problems. The first coder (the main researcher) was not sure if the other two coders would see this as an acceptable paragraph scheme or not. For this reason, he recorded a “—”, which essentially means he did not record any code here. In this case, both the second and third coder recorded the same score (“0”, which means they thought the paragraph structure was appropriate). Therefore, there was 100% agreement on this variable for this subject.

V1.2.9. Is the length of the letter appropriate?

In this variable, coders were asked to determine if the letter was too long or too short. Here, specific quantitative (three to six paragraphs and/or between half a page and full page) and qualitative (Too long would ask too much time of the recipient…Too short would be…an insufficient explication of why Company Q should grant this participant further consideration) guidelines were set for the coders.

Coding notes taken down by coders during training sessions included:

1. If the letter is all in one paragraph, then it might skew how long the letter appears and make it difficult to judge within the rubric given in the original coding scheme. For that reason, if a letter was all in one paragraph, then count how many lines it was. Nine lines or more is acceptable. Eight lines or fewer is unacceptable (too short).
Participant 1205FE did not reach the three to six paragraph or half page to full page cut points, so all three coders coded this letter with a “1”, which means the letter was too long or too short.

V.1.2.10. Did the participant include details about their job related skills?

In this variable, coders looked to see if the participant discussed why they would be a good fit for the position and whether the participant included details about their past work experience and what they could offer Company Q.

Coding notes taken down by coders during training sessions included:

1. The middle code (in between “absolutely no mention of skills and experience” and “full discussion of skills and experience”) should really be thought of as a “bare bones” attempt at including this type of information. In the pilot rounds there was some indecision as to how much was enough and not enough. This “bare bones” idea helped the coders conceptualize this variable.

2. The third code, which read, “No, the participant did not include any discussion of these elements”, really meant “absolutely no mention at all”. Again, in the pilot rounds there was some indecision on how much was enough and not enough. This “no mention at all” idea helped the coders conceptualize what was appropriate for this variable.

Participant 1205FE included a reasonable, albeit brief, discussion of his/her job related skills and past work experience. The first coder (the main researcher) was not sure if the other two coders would see this as an acceptable amount or not. For this reason, he recorded a “—”. In this case, both the second and third coder recorded the same score (“1”, which means they thought the participant did include some discussion of these elements but that the discussion was somewhat “bare bones”, especially in relation to more complete and thoughtful submissions by other students). Therefore, there was 100% agreement on this variable for this subject.

V1.2.11. Did the participant use the appropriate tone of voice, language, and word choice?

This was one of the more qualitative and subjective variables in the coding scheme. Perhaps for this reason, this variable was not coded reliably.
Coding notes taken down by coders during training sessions included:

1. Step back: Overall, was this in a business tone? Or are they somehow using inappropriate or informal language?
2. Over the top excitement about the position is acceptable.
3. Snarky or rude is unacceptable.
4. Bubbly and colloquial is unacceptable.

1205FE handled tone appropriately within this coding scheme. All three coders coded a “0” for a letter that was appropriate in tone, language, and word choice. Numerous submission were far less clear and the coders were not able to come together on this variable in a consistent manner. For this reason, this variable was dropped from the scheme and not included in the data analysis.

V1.2.12. Total for Part 1, Section 2.

Here, coders were instructed to add up the totals for the previous 11 variables. In this case that was “2+1+1+1+1”. For this reason, the last two coders recorded a “6” for this variable. Because the first coder (the main researcher) recorded a “—” for V1.2.10 while the other two coders recorded a “1”, his final code for V1.2.12 was “5”. This level of disagreement for this level of variable (ratio) is not a major concern. In ratio variables, it is important that coders are close but they do not always need to match exactly. Codes of “5”, “6”, and “6” would negatively affect the reliability of this variable but only to a relatively small degree.

V1.2.13. Range of formatting and formalness mistakes

Here, coders were asked to place the number generated in the previous variable in an interval variable (see Appendix F for the exact interval scheme used for this variable). All three coders assigned a code of “2”, which was the code for 4-7 formalness and formatting mistakes.

Section 3. SIT Related Components

C1.3.1. Did the participant include any intentional misspellings to save time or for effect?

Please note: In the original design of the coding scheme there was a second component (C1.3.2.) that asked: “Did the participant include any other abbreviations, examples of online shorthand or other
intentional misspellings for reasons of brevity or minimizing keystrokes that are not covered in the previous variable?" The first component was meant to focus on intentional abbreviations as often found in SITs such as lol, omg, gtg, idk, nd CUL8R, whereas the second was intended to capture any other inappropriate abbreviations such as use of BGSU without ever spelling it out for the reader beforehand. There was some difficulty differentiating between the two components in the two rounds of pilot testing. For this reason, the main researcher collapsed these two components into one. As a result, there is no component C1.3.2 in the final coding scheme.

Participant 1205FE did not include any abbreviations, online shorthand or other intentional misspellings to save time or for effect. For this reason, all three coders recorded a “0” for this component. This component was used rather infrequently in the letters to Company Q but it came up somewhat often in the emails to the professor.

Examples of this component in other letters included:

1. “Ref 9822LFQ”
2. “I show leadership by leading the Bowling Green State University soccer team to 3 straight MAC title games”
3. “I am an undergraduate student in BGSU [with out previously spelling out Bowling Green State University].”
4. “I am in DM and absolutely love it because it deals with a helpful cause of raising money for hospital treatment.”

C1.3.3. Did the participant misuse any uppercase or lowercase lettering?

This component asked coders to look for words that should have been capitalized but were not and/or words that should not have been capitalized but were.

Participant 1205FE did not include any uppercase or lowercase mistakes. For this reason, all three coders recorded a “0” for this component.
Examples of this component in other submissions included:

1. “I feel that with my experience in sales and Marketing could really be a large asset to your company.”

2. “hello Mr. Fitzpatrick my name is John Doe and i am writing you in regards to intership available at Company Q.

3. “some of my previous work experience is i worked at office max in the impress department and i also work at mcdonalds for a while so i have…”

4. “i am currently a Freshman at Bowling Green State University and…”

5. The company is Volunteers of American Bethesda Care Center in Freemont, Oh;” and “Cool Town, Oh 45444”.

C1.3.4. Did the participant use any emoticons or letter/symbol pictures?

There were no instances of emoticons in the entire sample. This component was never used.

C1.3.5. Did the participant include reduplicated letters for emphasis?

There were no instances of reduplicated letters in the sample. This component was never used.

C1.3.6. Did the participant inappropriately use periods, hyphens or ellipses or other symbols as conversations breaks or subject breaks?

This component asked coders to look for use of periods, hyphens or ellipses when another more standardized solution should have been used to break up the text.

Participant 1205FE did not include any periods, hyphens or ellipses. For this reason, all three coders recorded a “0” for this component.

This code was only used once during the coding of the letters but was used multiple times coding the emails to the professor. See C2.3.6 below for examples.
C1.3.7. Did the participant leave any words out (especially pronouns) that should not be excluded from formal writing?

This component asked coders to look for the omission of the pronoun “I” and perhaps other words (in limited numbers) that when omitted from informal writing there is little, if any, consequence but when omitted from formal writing the writer might seem unprofessional or unpolished.

Coding notes taken down by coders during training sessions included:

1. Use this component more sparingly then we have been (in the pilot tests). This code was being over used in the pilot tests and with so many uses the coders had trouble agreeing on what was appropriate and inappropriate. For this reason, coders limited their notations to only the most egregious examples as seen above.

Participant 1205FE did not include any uppercase or lowercase mistakes. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “I am first aide and CPR certified, I know how to manage my time very wisely, I am in shape, am a good people person, I get along with everyone and am a team player per say.”

2. “I am an energetic and well rounded college students with a good knowledge of computers and a good set of math skills and am willing to work weekends…”

3. “my number is 555-555-5555. hope to hear from you soon.”

C1.3.8. Did the participant include any slang, obscenities or other particularly informal word choices?

This component asked coders to look for words that might be acceptable in online social interaction but are less appropriate in a formal business letter.

Coding notes taken down by coders during training sessions included:

1. Examples of inappropriate words or phrases: “I love working with kids”; “Here’s the deal, I am a hard worker”; “I am a real go-getter”; “I take a real focus in everything I do”; “I would love this internship so I can fine-tune”.
2. Examples of appropriate words or phrases that were called into question as possibly inappropriate by one or more coders during pilot testing: “I deal with all sorts of problems”; “I think I would be a good fit”; “I feel I would be a good fit”; “I believe I would be a good fit”

Participant 1205FE did not include any particularly informal words in his/her submission. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “I would love to join your crew and use my abilities to help benefit your already praised establishment.”
2. “I have been looking at your Company Q and know that you guys are a very well credited company…”
3. “Hi. I’m interested in the internship…I have lots of energy.”
4. “I think this makes me a good candidate because I know what I am doing when it comes to this stuff.”

C1.3.9. Did the participant use any contractions?

This component asked coders to note any use of contractions in the letter of interest.

Participant 1205FE wrote, “My name is Jane Doe and I’m writing to you in regards…”

All three coders caught this error, despite the peculiar use of a contraction. This error should have also been coded in Section 4 (grammatical mistakes) for the misuse of the apostrophe.

Examples of this component in other submissions included:

1. “Also, with some of the previous jobs I’ve had…”
2. “I’m very energetic and always arriving in class on time…I’m looking forward to talking more to you…”
3. “I’m currently getting my degree for journalism…”
4. “I’d definitely treasure this opportunity if I’m qualified.”
C1.3.10. Did the participant include any inappropriate use of symbols (other than emoticons)?

Here, coders were asked to look for informal use of symbols including but not limited to: # or $. Coding notes taken down by coders during training sessions included:

1. Include inappropriate use of exclamation points.
2. Include inappropriate use of parentheses.

Participant 1205FE did not include any inappropriate use of symbols his/her submission. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “Again, I think I would be a great addition to your team!”
2. “Thank-you for your time.”
3. In subject line of email: “JOB INTEREST!”

C1.3.11. Did the participant include any other instances of casual or speech-like language usages or examples that resemble a “transcription of speech”?  

Here coders were asked to code all graphical devices and wording that contributed to the impression of the text being spoken but not covered in the previous ten variables.

Coding notes taken down by coders during training sessions included:

1. Must be egregious. Coders were overusing this code in the pilot test so the main researcher asked them to tone it down and only code extreme examples.
2. This is an “other” variable so use it sparingly.
3. Sentences that read like a conversation.
4. Informal construction + speech-like word choice.

Participant 1205FE did not include any transcriptions of speech in his/her submission. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “I cannot think of one better person for the job than me.”
2. “…so hopefully you will call me for an interview and we can meet in person.”
3. “The one thing I hate is not having answers for people.”

4. “With all of this said, I would like to interest you by providing my previous work experience and reasons for why I am the perfect candidate.”

5. “My education coupled with previous work experience will allow me to practice and perfect people skills on a daily basis, which I truly do enjoy.”

V1.3.1. Total for Part 1, Section 3.

Here, coders were asked to simply add up the number of instances in components 1 through 11. Participant 1205FE only had one instance of SIT-like errors in his/her submission. All three coders noted “1” for this variable.

V1.3.2. Range of SIT related instances.

Here, coders were asked to place the number generated in the previous variable in an interval variable (See Appendix F for the exact interval scheme used for this variable). All three coders assigned a code of “1”, which was the code for 1-2 instances of SIT-like errors.

V1.4.1. How many grammatical mistakes (not covered in Section 3) did you find in the letter?

In this variable, coders were asked to count the number of grammatical mistakes s/he found in the student’s letter. After the coders counted the number of mistakes they were then instructed to fit that into a range (see Appendix F for the exact breakdown of the ranges).

Subject 1205FE included a number of grammatical errors. For example s/he wrote, “After reading and examining Company Q I really believe I would be a great asset the company.” In this sentence there should be a comma after “Company Q” and the word “to” should appear before “the company”.

The first and second coders recorded a “2”, indicating they found between 5 and 8 mistakes. The third coder recorded a “3”, indicating he found between 9 and 12 mistakes. This slight disagreement is a good indication of why the grammar variable was coded reliably (alpha = .74) but it was on the borderline between acceptable and unacceptable (.70 is usually the cut off point for unacceptable alphas).
V1.5.1. Final assessment of the letter.

Here, coders were asked to consider whether the letter achieved its purpose as a beneficial representation of the participant and whether the letter was generally well written and a document likely to make a good first impression.

Coding notes taken down by coders during training sessions included:

1. Ask yourself, “Was this a letter of interest? Did it look like one, seem like, and read like one?” If not, then it should be coded as a “2”.

2. Think of the first level as reserved for great letters, the second level as reserved for letters that were okay and the third level as reserved for letters that were bad.

The first coder recorded a “1” for this variable, indicating he felt this letter was okay or passable. He noted in the margin that this was a “borderline 2”, indicating that he experienced some indecision about whether to code this as an okay or bad submission. The second coder recorded a “2” for this variable, indicating that she felt the letter was bad. The third coder recorded a “1” for this variable, indicating that he felt the letter was okay.

This slight disagreement is a good indication of why the final assessment variable was coded reliably (alpha = .71) but was on the borderline between acceptable and unacceptable.
Part 2: The Email to the Professor

Email subject line: New Assignment

Email body:

Dr.K,

I' am writing to you to apologize for missing class on Monday. I wasn’t feeling well and wasn’t able to make class.

My friend in class told me you passed out information on an important assignment. I was hoping I could stop by during your office hours to discuss more about the assignment and my reason for not being in class.

Thank you and I look forward to speaking with you.

1205FE (only gave first name)

Coding Process for Each Variable in Part 2 (The Email to a Professor)

Section 1. The Basics

V2.1.1. Did the participant successfully send an email to Dr. K?

Here, the coders were asked to check if the email made it to the appropriate email address.

Because 1205FE’s email was sent to the correct address for Dr. K, all three coders recorded a “0”: Yes, the participant successfully sent an email to Company Q.

Section 2. Formalness and Formatting

V2.2.2. Did the email include an appropriate/useful subject in the subject line?

For this variable, coders were asked to look at the subject line in the email to see if it was useful, descriptive, and appropriate for the current task.

Coding notes taken down by coders during training sessions included:

1. “Class 12/15” and “class and date” are acceptable
2. “class” is unacceptable
3. “Missed Class” is acceptable
4. “Class Attendance” is acceptable
Participant 1205FE wrote “New Assignment” in the email subject line. The first and second coders recorded a “1”: No, the email subject line was somehow inappropriate. The third coder was unsure whether this subject was descriptive enough within the current coding scheme as most of the students’ emails’ subject lines focused on the missed class and not the new assignment. For this reason, the third coder recorded a “—”, which essentially means he did not record any code here. In this case, both the first and second coder recorded the same score so there was 100% agreement on this variable for this subject.

**V2.2.2. Did the participant include a salutation in the email?**

For this variable, coders were asked to determine if the participant included a complete salutation (name and greeting term), just a name or just a greeting term, or neither a greeting term nor a name.

Participant 1205FE wrote: “Dr.K,”. All three coders recorded a “1”, which denoted that this student just used a name. See Appendix F for the other possible codes in this variable.

**V2.2.3. Did the participant include a closing in the email?**

Here, coders were asked to determine if the participant included a complete closing (name and parting statement), just a name or just a parting statement, or neither a parting statement nor a name.

Coding notes taken down by coders during training sessions included:

1. “Thank you for your time” is acceptable (as are longer parting phrases like it).

Participant 1205FE wrote:

“Thank you and I look forward to speaking with you.

First Name”

All three coders recorded a “0” here because 1205FE included both a name and a parting statement. In this instance it is clear how the training sessions and additional coding notes prepared coders to handle unique situations. The above coding note, which was added to the scheme in the third coding meeting applied directly to 1205FE’s submission.

**V2.2.4. Did the participant include their first and last name somewhere in the email?**

In this variable, coders were looking to see if there was enough information for a professor to be able to figure out which student, emailed them about the missed class.
Subject 1205FE only included his/her first name. For this reason, all three coders recorded a “1”, which denoted that the subject included a name but not both first and last names.

**V2.2.5. Did the participant specify which class they are taking with Dr. K, either by time or section?**

Similar to the previous variable, the goal of this variable was to determine whether the student included all the necessary information for a professor to figure out who exactly missed what class.

Coding notes taken down by coders during training sessions included:

1. Course name or day and time are both acceptable

Participant 1205FE did not indicate which class s/he was taking with Dr. K, however, many students in the sample did include this information (often in the subject line or the first sentence). Because 1205FE did not include this information, all three coders recorded a “1”, meaning “No, the participant did not specify which class they are taking with Dr. K.”

**V2.2.6. Did the participant specify what day they missed the class?**

Much like the previous two variables, this one was implemented to analyze whether a student included enough information about the missed class to avoid confusion.

1205FE noted in the first line that s/he missed class on Monday. All three coders saw this and recorded a “0” for “Yes, the participant specified what day they missed class.”

**V2.2.7. Did the participant say why they missed the class?**

Here, coders were asked to check that the student gave a valid reason for missing class.

1205FE noted that s/he was not feeling well and was thus not able to make it to class. All three coders caught this and recorded a “0” for “Yes, the participant did say why they missed class.”

**V2.2.8. Did the student ask about making up the missed work?**

Here, coders were asked to scan the email to see if the student ever asked about making up the missed work. There was some confusion with the variable because the students often don’t actually ask about the work but instead write something very similar to what 1205FE wrote: “I was hoping I could stop by during your office hours to discuss more about the assignment and my reason for not being in class.”
Coding notes taken down by coders during training sessions included:

1. The student does not need to specifically ask, just need to suggest the idea or broach the subject.

All three coders coded a “1” for subject 1205FE, indicating that they did not feel the student ever asked about making up the missed work or even really broached the subject. Despite coding this subject reliably, intercoder reliability analysis showed that this variable was not coded consistently by all three coders (alpha = .68), although it was close to the .70 cut off point.

Examples of this variable in other submissions that caused confusion included:

1. “I can come to your office to pick up the assignment if that works for you.”
2. “Although, my friend did explain what exactly it was, I am afraid I still did not get all of the information. Would it be possible to set up a date to meet with you, during your office hours or even outside of those?”

V2.2.9. Is the length of the email appropriate?

Here, coders were asked to assess whether the email was so long that it included much more information and text than was necessary, which would ask too much time of Dr. K or whether the email was so short that it might appear curt and/or be an insufficient explanation regarding why Dr. K should work with the student to make up the missed work.

Coding notes taken down by coders during training sessions included:

1. An appropriate length is about 3 to 5 lines
2. Too long is 6 or more lines
3. Too short is 1 or 2 lines

Participant 1205FE’s email was four lines (in its original/digital form) and was thus coded as an acceptable length by all three coders.

V2.2.10. Did the participant use the appropriate tone of voice, language, and word choice?

Like the tone variable in Part 1, this was one of the more qualitative and subjective variables in the coding scheme. Perhaps for this reason, this variable was not coded reliably.
Coders were asked to assess whether the students used language that was too demanding, rude or showed signs of an overactive sense of entitlement and whether there were multiple instances of informal or inappropriate language.

1205FE handled tone appropriately within this coding scheme. All three coders coded a “0” for a letter that was appropriate in tone, language and word choice. Numerous submission were far less clear and the coders were not able to come together on this variable in a consistent manner. For this reason, this variable was dropped from the scheme and not included in the data analysis.

V2.2.12. Total for Part 2, Section 2.

Here, coders were instructed to add up the totals for the previous 10 variables. In this case, that was “1+1+1+1+1 = 5”. For this reason, the first two coders recorded a “5” for this variable. Because the last coder recorded a “—” for V2.2.1 while the other two coders recorded a “1”, his final code for V2.2.10 was “4”. This level of disagreement for this level of variable (ratio) is not a major concern. In ratio variables, it is important that coders are close but they do not always need to match exactly. Codes of “5”, “5”, and “4” would negatively affect the reliability of this variable but only to a relatively small degree.

V2.2.13. Range of formatting and formalness mistakes

Here, coders were asked to place the number generated in the previous variable in an interval variable (see Appendix F for the exact interval scheme used for this variable). All three coders assigned a code of “2”, which was the code for 4-7 formalness and formatting mistakes.

Perhaps due to some indecision about V2.2.8 and V2.2.10, the range variable for Part 2, Section 2 was not coded reliably (alpha = .60). However the total variable (just above) was coded at an acceptable reliability level (alpha = .75). This might go back to the flexibility granted to ratio-level variables in Krippendorff’s statistic and the fact that there were a number of subjects who were on the border between two codes, which led to a slight lack of reliability in the range variable. This variable was removed from data analysis and the total variable was used in it’s place (as it was in Part 1).
Section 3. SIT Related Components

C2.3.1. Did the participant include any intentional misspellings to save time or for effect?

Please note: In the original design of the coding scheme there was a second component (C2.3.2.) that asked: “Did the participant include any other abbreviations, examples of online shorthand or other intentional misspellings for reasons of brevity or minimizing keystrokes that are not covered in the previous variable?” There was some difficulty in differentiating between the two components in the two rounds of pilot testing. For this reason, the main researcher collapsed these two components into one. As a result, there is no component C2.3.2 in the final coding scheme.

Coding notes taken down by coders during training sessions included:

1. okay = acceptable; ok = unacceptable
2. course abbreviations (IPC 102) are acceptable (not coded).
3. Days of the week (MWF) are acceptable (not coded).

Participant 1205FE did not include any abbreviations, online shorthand or other intentional misspellings to save time or for effect. For this reason, all three coders recorded a “0” for this component. This component did, however, come up in others’ emails to the professor.

Examples of this component in other submissions included:

1. “Therefore, I’m asking you if there is any way I can make-up the work I missed and collect any other important items, such as notes, slides, etc. from you, asap?”

C2.3.3. Did the participant misuse any uppercase or lowercase lettering?

This component asked coders to look for words that should have been capitalized but were not and/or words that should not have been capitalized but were.

Participant 1205FE did not include any uppercase or lowercase mistakes. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “…is there anyway that i could get the information on the assignment and make up the part of it that i missed”
2. “I was at the hospital getting an IV put in me to get my fluids back to their normal state. I'm sorry about this; I hope you will understand.”

C2.3.4. Did the participant use any emoticons or letter/symbol pictures?

There were no instances of emoticons in the entire sample. This component was never used.

C2.3.5. Did the participant include reduplicated letters for emphasis?

There were no instances of reduplicated letters in the sample. This component was never used.

C2.3.6. Did the participant inappropriately use periods, hyphens or ellipses or other symbols as conversations breaks or subject breaks?

This component asked coders to look for use of periods, hyphens or ellipses when another more standardized solution should have been used to break up the text.

Participant 1205FE did not include any periods, hyphens or ellipses. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “First of all, I really apologize for missing today’s class – I had a very important obligation.”

2. “If not, I will see you next class…Hopefully!”

C2.3.7. Did the participant leave any words out (especially pronouns) that should not be excluded from formal writing?

This component asked coders to look for the omission of the pronoun “I” and perhaps other words (in limited numbers) that when omitted from informal writing it is mostly inconsequential but when omitted from formal writing might appear unprofessional or unpolished.

Participant 1205FE did not include any uppercase or lowercase mistakes. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:

1. “I was informed by a friend in the class that an important assignment was started, and was hoping it would be possible…”
2. “The reason was due to not feeling the greatest.”

C2.3.8. Did the participant include any slang, obscenities or other particularly informal word choices?

This component asked coders to look for words that might be acceptable in online social interaction but are less appropriate in an email to a professor.

Participant 1205FE did not include any particularly informal words in his/her submission. For this reason, all three coders recorded a “0” for this component.

Examples of this component in other submissions included:
1. “Hey this is John Doe from your SM 221 class.”
2. “Please let me know how i can make this stuff up…”

C2.3.9. Did the participant use any contractions?

This component simply asked coders to note any use of contractions in the letter of interest.

Coding notes taken down by coders during training sessions included:
1. If it is missing an apostrophe, then it is a grammar problem too (and should be counted there).

Participant 1205FE wrote, “I’am writing to you to apologize for missing class on Monday. I wasn’t feeling well and wasn’t able to make class.” All three coders caught all three contractions. For this reason, all three recorded a “3” for this component.

C2.3.10. Did the participant include any inappropriate use of symbols (other than emoticons)?

Here, coders were asked to look for informal use of symbols including but not limited to: # or $.

Coding notes taken down by coders during training sessions included:
1. Include inappropriate use of exclamation points.
2. Include inappropriate use of parentheses.
3. Include inappropriate use of slashes.

Participant 1205FE did not include any inappropriate use of symbols his/her submission. For this reason, all three coders recorded a “0” for this component.
Examples of this component in other submissions included:

1. “Again, I apologize for missing class!”
2. “I worked till midnight the night before and @ 1030 I had a test in weather and climate that I study for. I tried to wake-up for the class, but just overslept.”

C2.3.11. Did the participant include any other instances of casual or speech-like language usages or examples that resemble a “transcription of speech”? Here coders were asked to code all graphical devices and wording that contributed to the impression of the text being spoken but not covered in the previous ten variables.

Coding notes taken down by coders during training sessions included:

1. Must be egregious. Coders were overusing this code in the pilot test so the main researcher asked them to tone it down and only code extreme examples.
2. This is an “other” variable so use it sparingly.
3. “See you” or “Talk to you soon” is an acceptable closing.
4. “I was wondering” is unacceptable as it is like speaking out your concerns rather than writing out your concerns.
5. “Since” = acceptable
6. If “so” is used in a conversational way then code it here.

Participant 1205FE wrote “I was hoping I could stop by during your office hours…” The first and second coder noted this as an example of this component. The third coder did not code this instance.

Examples of this component in other submissions included:

1. “Thanks for listening.”
2. “I have a written excused note from my doctor so I am wondering if it is at all possible to make up the work during your office hours…”
V2.3.1. Total for Part 1, Section 3.

Here, coders were asked to simply add up the number of instances in components 1 through 11.

Participant 1205FE had three instances of C.2.3.9 and one instance of C.2.3.8 (according to 2 of the three coders). As a result, the first two coders recorded a “4” for this variable while the third coder recorded a “3” for this variable. This slight disagreement is one of the rare examples when coders were not in full agreement. This variable was coded reliably (alpha = .90).

V2.3.2. Range of SIT related instances.

Here, coders were asked to place the number generated in the previous variable in an interval variable (see Appendix F for the exact interval scheme used for this variable). All three coders assigned a code of “2”, which was the code for 3-4 instances of SIT-like errors.

V2.4.1. How many grammatical mistakes (not covered in Section 3) did you find in the email?

In this variable, coders were asked to count the number of grammatical mistakes s/he found in the student’s email. After the coders counted the number of mistakes they were then instructed to fit that into a range (see Appendix F for the exact breakdown of the ranges).

Subject 1205FE included a couple of grammatical errors including a missing space after “Dr.” and before “K” as well as the “I’ am” issue discussed in a previous variable.

All three coders recorded a “1” for this variable, indicating they found between 1-2 mistakes.

V2.5.1. Final assessment of the email.

Here, coders were asked to consider whether the email was generally well written, clear, and likely to make a good impression on the professor.

Coding notes taken down by coders during training sessions included:

1. Think of the first level as reserved for great (nearly error-free) emails, the second level as reserved for emails that were okay and the third level as reserved for emails that were bad (rife with errors and mistakes of judgment, word choice, and written communication).

All three coders recorded a “1” for this variable, indicating that all three found this email to be okay (not great but not bad either).
Overall Total Variable

This variable asked coders to give an overall rating of the written communication displayed in each participants’ work. Coders completed this task by totaling their scores from the following key variables: V1.1.3, V1.2.12, V1.3.1, V1.4.1, V1.5.1, V2.2.11, V2.3.1, V2.4.1, V2.5.1. For participant 1205FE, this resulted in the following scores: First coder = 24; Second coder = 26; Third coder = 25. This slight disagreement is to be expected with this type of variable (derived from numerous other variables). Coders generally viewed students’ letters and email in a similar fashion as indicated by a strong reliability (alpha = .89).

Part 3. The Videos

Video for Participant 1225JU

VA.1. Was the participant given Stimulus 1 or Stimulus 2?

This variable asked coders to look closely at the beginning of the video to decide whether the student was randomly assigned to the first or second stimulus. All three coders noticed that the PowerPoint presentation was Stimulus 1. For this reason, all three coders recorded a “1” for this variable.

VA.2. How many programs did the participant use in addition to PowerPoint, Word, and one Internet Browser window?

Here, coders were asked to count the number of programs used in addition to the minimum necessary for completing the required tasks.

Participant 1225JU opened a second Internet browser window to go to google.com. All three coders caught this subtle digital behavior and coded a “1” for this variable.

VA.3. How many functional websites did the participant visit?

Here, coders were asked to count the number of websites participants visited to help successfully complete the study’s tasks. In other words, if a website was used as a reference or to improve either the email or the letter, then coders would note that behavior here.
Participant 1225JU referenced google.com, about.com, and letterwritingguide.com to improve their submission to Company Q. The first and third coders recorded a “3” for this variable. Because the participant left about.com and returned to it twice, the second coder recorded a “5” for this variable.

This level of disagreement for this level of variable (ratio) is not a major concern. In ratio variables, it is important that coders are close but they do not always need to match exactly. Codes of “3”, “5”, and “3” would negatively affect the reliability of this variable but only to a relatively small degree. The alpha for this variable was strong at .96.

VA.4. How many dysfunctional websites did the participant visit?

Here, coders were asked to count the number of websites each participant visited that were wholly unrelated to completing either task but were instead more for the participant’s own entertainment. Participant 1225JU visited facebook.com. All three coders saw this take place in the video and recorded a “1” for this variable.

VA.5. How many other off-task or concurrent behaviors did the participant enact?

There are a number of distracting multitasking and concurrent behaviors that take place within a website like Facebook or even mybgsu that can get a student off-task. For this reason, coders were asked to count all visible instances of being off-task (even if they took place within a website necessary for completing the task such as mybgsu or a personal email account).

Participant 1225JU could be seen reading emails in their bgsu email that were unrelated to the current two tasks. This concurrent behavior took place twice. 1225JU also “poked” a friend on facebook. All behaviors on Facebook and MySpace such as pokes, wall postings, and comments on photos were recorded in this variable. All three coders recorded a “3” for this variable.

VA.6. Total time spent off-task

In this variable, coders were asked to keep track of how long a participant spent visiting off-task websites (VA.4) and enacting other off-task behaviors (VA.5).
Participant 1225JU spent about 2 or 3 minutes Facebooking and checking their email. The first coder recorded 2 minutes and 15 seconds of off-task behaviors. The second coder recorded 3 minutes and 4 seconds of off-task behaviors. The third coder recorded 2 minutes and 10 seconds of off-task behaviors.

This level of disagreement for this level of variable (ratio) is not a major concern. In ratio variables, it is important that coders are close but they do not always need to match exactly. Codes of “2:15”, “3:04”, and “2:10” would negatively affect the reliability of this variable but only to a relatively small degree. The alpha for this variable was strong at .92.

**VB.1. Total Time Spent on the Computer**

This variable asked coders to determine the number of minutes each participant spent actively using the computer (either off-task or on-task).

The first coder recorded a time of 26:45. The second coder recorded a time of 26:48. The third coder recorded a time of 27:00.
Appendix I

A Submission that Received a Particularly Low Overall Score

Email to Professor:

Email Subject: Missed Class

dear Dr. K

   This is 1101YA in you 9:30 class and i am writing you to tell you that i missed you class today and would like to recieve any thing that we may have gone over today. the reason i wasnt able to attend your class was because i was not feeling very well and did not have time to email you before class due to the fact i was at the hospital getting an iv put in me to get my fluids back to there normal state im sorry about this i hope you will understand.

Sincerly 1101YA

Letter of Interest (included in body of email):

Email Subject: internship

Dear Mr. Fitzpatrick

   hello Mr. Fitzpatrick my name is 1101YA and i am writing you in regards to the intership avaible at Company Q. I am a energetic and well rounded college students with a good knowledge of computers and a good set of math skills and am willing to work weekends and any other time that is avaible as long as it does not interfear with my class. the job reference number is 9822LFQ and i know your address so hopefully you will call me for an interview and we can meet in person. my number is 555-555-5555 hope to hear from you soon. some of my pervious work expierence is i worked at office max in the impress department and i also work at mcdonalds for a while so i have been in differnt work enviroments and im sure i would be a perfect fit at your business.

Sincerly 1101YA
A Submission that Received a Particularly High Overall Score

Email to the Professor:

Email Subject: EDHD 100 Class Concern

Dr. K,

Hello. My name is 0216RO and I am a student in your EDHD 100 class. Yesterday, I missed class due to illness. I was wondering if it would be possible to obtain the first part of the required assignment that was completed during the period I missed. If this is at all possible, please contact me at your earliest convenience.

Thank you for your time,

0216RO

Letter of Interest (attached to email):

Email Subject: Interested in Job Listing 9822LFQ

Mr. Fitzpatrick,

I am very interested in a job position with Company Q. I have attached my cover letter and resume for further review.

Thank you for your time. I look forward to hearing from you.

Sincerely,

0216RO

Letter attachment:

January 27, 2009

Company Q
333 West Street
Cool Town, OH 45444

Dear Mr. Fitzpatrick,

My name is 0216RO, and I am currently a senior majoring in Human Development and Family Studies at Bowling Green State University. I am in my last semester at the university and I am looking for a position upon graduation. After reading the Company Q job listing, I became intrigued with the company and its mission to serve children and families in Cool Town Ohio.
I am currently employed at the Wood County Gift Exchange, a non-profit organization in Bowling Green that serves as a visitation and exchange site for children and families of domestic violence. My position at the Gift Exchange, as lead monitor has equipped me with communication skills, as well as leadership skills. Some of my duties for the organization include supervising clients and volunteers, writing monthly reports to the court, and administering client and volunteer files. In addition, I have participated in grant writing workshops, as well as helped orchestrate fundraising events.

I feel that I would be a very useful asset to the Company Q team and I hope you will consider me for the night monitor position. I have attached my resume for further review. If you have any questions, please feel free to call me at (555) 755-7555 or e-mail me at 0216@bgsu.edu

Thank you for your time.

Sincerely,

0216RO