

SPEAKING UP IN THE 21<sup>ST</sup> CENTURY: THE EFFECTS OF  
COMMUNICATION APPREHENSION AND INTERNET SELF-EFFICACY ON  
USE OF SOCIAL NETWORKING WEBSITES

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by  
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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled

SPEAKING UP IN THE 21<sup>ST</sup> CENTURY: THE EFFECTS OF COMMUNICATION  
APPREHENSION AND INTERNET SELF-EFFICACY ON USE OF SOCIAL NETWORKING  
WEBSITES

presented by Brendan R. Watson, a candidate for the degree of Master of Arts, and hereby certify that, in my opinion, it is worthy of acceptance.

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## DEDICATIONS

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## ABSTRACT

The act of communication is an act of volition, mediated by one's level of fear associated with real or anticipated communication. Communication researchers call this fear communication apprehension and have traditionally recognized two forms: written communication and oral communication apprehension, both of which affect the amount an individual is likely to communicate. With the advent of communication via the computer, or computer-mediated communication (CMC), Scott and Rockwell (1997) and Scott and Timmerman (2005) have suggested a third form of communication apprehension: computer mediated communication apprehension. This construct combines computer apprehension as well as these earlier forms of communication apprehension. Computer mediated communication has been studied most frequently in regards to the use of email but never in regards to the use of social networking website use.

To test the validity of this new construct, this study tests writing apprehension, oral communication apprehension, computer apprehension, computer-mediated communication apprehension and a related measure of Internet self-efficacy — or one's belief in his or her capability capabilities to achieve tasks online — to see which of these constructs best explain use of social networking websites. Only CMC apprehension significantly explained use of these websites. This finding illustrates the need to not only study both the communication task and technology in tandem, but to also address skills related to both in communication courses to help students overcome their apprehensions.

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## INTRODUCTION

The Internet has become a ubiquitous component of Americans' daily lives. According to the Pew Internet and American Life Project, 73% of Americans had online service and 42% of households had a broadband connection in 2006 (Madden, 2006). More than 70 million Americans logged on to the Internet each day (Rainie and Horrigan, 2005). In order of popularity, they used the Internet to send and receive email, get news, check the weather, do research for their jobs, research a product before buying it, get political information, send an instant message, do research for school or job training, get travel information and the list goes on. To illustrate the growing importance of the web in Americans' daily lives, 35% of Americans say the Internet has greatly improved their job performance; 33% of Americans say it has greatly improved their leisure time; 32% percent say it has greatly improved the way they shop; and 20% say it has greatly improved how they get healthcare information (Madden, 2006).

The Internet has also enhanced Internet users' ability to build personal and professional relationships with others online. Thirty-one percent of users said the Internet increased the number of core ties in their social network, while 30% said that the Internet increased their numbers of casual acquaintances (Boase, et al., 2006).

The advent of the personal computer and the internet in particular spawned computer-mediated communication (CMC), which includes word-processing, email, Internet chat, video conferencing and more recently social networking websites (Scott and

Timmerman, 2005). These social networking websites (see Figure 1) are driving many of the current trends in Internet use. The behemoth in the field is MySpace, which is the second most viewed site on the Internet with over 100-million users and more than 30-billion page views monthly (CBC, 2006; Davis, 2006). And MySpace is not an anomaly at the top.

There is an ever-growing list of popular social networking Websites, such as Facebook, Xanga and Bebo.

There is also a growing list of smaller niche social networking websites.

AsianAvenue.com and BlackPlanet.com cater to Asian Americans and Black Americans respectively, while LinkedIn.com and Doostang.com are both career-oriented social networking sites, and jdate.com, holypal.com and naseeb.com, which are Jewish, Christian and Muslim social networking websites. The list could go on — cars, high schools, cell phones, even gothic industrial culture — to illustrate that regardless of one's interests there is a social networking website that caters to like-minded people.

A recent study by the Pew Internet and American Life Project gives a sense of the scope of the boom in social networking websites. According to the study, 55 percent of American teens, 12-17 years old, use a social networking website, and 48 percent of teens visit such sites daily (Lenhart and Madden, 2007). Ninety-one percent of teens with a social networking profile use the sites to stay in touch with friends they see often; 82 percent to stay in touch with friends they rarely see; 72 percent to make plans with friends; and 19 percent to flirt with others. American teens — especially girls and teens between the ages of 15 and 17 — appear to be driving these trends. However, it is important to recognize that

social networking websites have changed communication beyond creating a virtual high school cafeteria of sorts.

Online social networks have helped political and social movements streamline communication and strengthen solidarity (Diani, 2001); have created new outlets for religion, support groups and minority opinions (Dutta-Bergman, 2006); have created new opportunities for education and cross-cultural exchange (Hiltz and Turoff, 2005); and overall have increased the opportunity to meet people and build intimacy.<sup>1</sup>

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<sup>1</sup> These findings do not dismiss troubling, albeit minority, trend of “problematic Internet use,” characterized by compulsive Internet use that intensifies feelings of loneliness and depression, cliquish behavior and inactivity (Caplan, 2003, Matei, 2005).

## LITERATURE REVIEW

### **Communication Apprehension & Internet Self-Efficacy**

As the teens who drive the popularity of social networking websites grow up, the personality expressed in social networking profiles may grow up, and profiles may migrate to other sites as personal interests change. It is unlikely, though, that teens will abandon their online profiles, evidenced by the fact that the National Association For College Admissions Counseling publishes guidelines titled, “MySpace in College Admissions” (Verardi, 2007), employers are beginning to use MySpace as a recruiting tool (Sullivan and Millunchick, 2006), and more than half of MySpace users are now over the age of 35 (ComScore, 2006).

Many would argue that social networking websites present an exciting and lasting opportunity for individuals to expand their personal networks. Not everyone, though, embraces social networking websites. Reticence to use these sites may revolve around wanting to maintain personal privacy, safety concerns and a lack of leisure time. This paper, however, will focus on whether communication apprehension and Internet self-efficacy affect the use of social networking websites.

Communication apprehension, referred to synonymously as communication anxiety, is “an individual’s level of fear or anxiety associated with either real or anticipated communication with another person or persons” (McCroskey, 1997, p. 82). This anxiety is significant, because it adds to our understanding of the cognitive processes behind communication, which is not a mindless behavior:

People have the ability to choose to communicate or choose not to

communicate... Whether a person is willing or not to communicate, either in a given instance or more generally, is a volitional choice which is cognitively processed. The personality of the individual may be a determining factor in the manner in which that choice is made and what that choice will be (McCroskey and Richmond, 1990, pp. 20-21).

Communication apprehension is not the only factor that affects an individual's decision whether or not to communicate. It does, however, play a significant role. Communication apprehension theory posits that high-apprehension individuals are less likely to engage in communication than low-apprehension individuals (Scott and Timmerman, 2005, McCroskey and Richmond, 1990).

Furthermore, because communication apprehension is believed to be a personality trait, it remains relatively consistent across different communication scenarios. Situational characteristics play a role in determining how much a person might communicate. For example, Jane Doe might be more comfortable communicating with a close friend than a stranger she just met at the local coffee shop. But according to communication apprehension theory, if Jane Doe is more willing to communicate than John Doe in context A, she will also be more willing than him to communicate in context B (McCroskey and Richmond, 1990).

Communication apprehension is significant because it has been tied to introversion, anomie and alienation, low self-esteem, cultural divergence and deficient communication skills (McCroskey and Richmond, 1987; Donovan and MacIntyre, 2005). These other traits are antecedents to communication apprehension (MacIntyre, 1994). They may develop in tandem with communication apprehension, so they cannot be viewed as direct outcomes of communication apprehension. These other traits, however, do underscore the communication

difficulties faced by high-apprehensive individuals. These difficulties affect personal relationships and performance in educational and professional settings.

While there is no demonstrated connection between intelligence and communication apprehension, teachers have negative expectations of high-apprehensive communicators, which lead to lower evaluations on report cards and standardized tests (McCroskey and Richmond, 1987). High-apprehensive students also suffer their peers' negative perceptions. In an organizational context, high-apprehensive communicators are less likely to be hired or promoted, and thus have a lower earning potential (Richmond and Roach, 1992). These conclusions are consistent across oral, written and computer-mediated communication.

Self-efficacy is similarly a psychological personality trait, which refers to one's self-belief in his/her capability to attain a specific goal (Nowak and Krcmar, 2003). According to Chung and Nam (2007):

Self-efficacy as a form of self-evaluation influences decisions about what behaviors to undertake, the amount of effort and persistence put forth when faced with obstacles, and finally, the mastery of the behavior. The outcomes people anticipate depend largely on their judgments of how well they will be able to perform in given situations (p. 216)

Measures of self-efficacy have been applied to such diverse topics as leadership, sales (Martin and Bush, 2006), smoking cessation (Hong, 2006), eating disorders (Lapinski, 2006), just to name a couple. To be useful, such a broad measure as self-efficacy needs to be narrowed to focus on a specific goal, in this case to use the Internet. This type of self-efficacy is labeled Internet self-efficacy, defined as what a "person believes he or she can accomplish online..." (Chung and Nam, 2007, p. 216).

The goal of this paper is to determine whether communication apprehension and Internet self-efficacy affects use of social networking websites. This effort is an extension of previous studies that have investigated computer-mediated communication apprehension, or CMC apprehension, computer and Internet self-efficacy. Studies of CMC apprehension have focused on communication approach-avoidance as it relates to the use of email and the adaptation of “new technologies” (Scott and Rockwell, 1997; Scott and Timmerman, 2005; Brown et. al., 2002). In these studies, “new technologies” have included word processing, email, online services, cable television, video games, voicemail and cellular phones. Studies of computer and Internet self-efficacy have primarily focused on learning computer programs and using the Internet for research tasks, email and instant messaging (Hong, 2006, Minsky and Marin, 1999, Chung and Nam, 2007). Neither studies on CMC apprehension or self-efficacy have reported on how communication apprehension affects use of social networking websites, although previous studies of have examined similar technologies as those that support social networking websites.

### **Types of Communication Apprehension**

Most of the technologies listed above, as well as the tools of social networking websites, have evolved from oral or written communication — or both. Thus, to understand communication apprehension in the context of social networking websites, it is necessary to consider traditional measures of oral communication apprehension and writing apprehension. Also, when studying electronic communication, one must consider antipathy towards both



the communication task, as well as towards the technology itself (Scott and Timmerman, 2005). Because social networking websites also require the use of a computer, it is also necessary to consider the effects of computer apprehension. This paper will investigate the effect of these different types of apprehension individually, as well as the influence of a composite measure of CMC apprehension on social networking websites use. Doing so will hopefully result in an understanding of how to refine the still relatively new CMC apprehension measure and better understand the cognitive influences at play in contemporary Internet communication.

### **Computer mediated communication (CMC)**

Computer-mediated communication (CMC) is “person-to-person communication over computer networks” (Campbell and Neer, 2001. p. 391). A host of factors influence CMC use. In their comparison of online and traditional students in a public speaking course, Clark and Jones (2001) reported that 86% of online students chose that course format for convenience, mainly the ability to complete assignments on their own schedule. Researchers have also demonstrated that individual motives and communication styles influence choices to use CMC (Rice et. al., 1992). Several studies, however, have also demonstrated that communication apprehension has a significant influence on not only an individual’s choice *whether* to use CMC, but *how* individuals communicate using CMC. Researchers refer to this type of apprehension as computer-mediated communication apprehension: “an individual’s level of fear or apprehension associated with actual or anticipated use of information

technology to communicate with others” (Brown et. al., 2002).

CMC refers to a wide variety of technologies: electronic bulletin boards, instant chat, email, video conferencing, voicemail, etc. While it is intuitive that use of text-based technologies such as email would be most influenced by writing apprehension, research has not consistently illustrated a correlation between writing apprehension and email use. Scott and Timmerman (2005) and Brown et. al. (2002) found oral communication apprehension, not writing apprehension, best explains use of email and other text-based CMC technologies.

Brown et. al. (2002) conclude of email that:

Its form and structure (headers indicating to, from, date and subject) lend it to be seen as the natural evolution of the written memo. However, it is evident that the socially constructed purposes for this medium may range from formal directives to informal chats. Thus, communication in the computer-mediated environment can also be seen as similar to an oral format (p. 3)

Because of the salient characteristics CMC shares with both oral and written communication, it is important to consider both the effect of writing apprehension and oral communication on CMC use. Scott and Timmerman (2005) also assert “people may be averse to the task rather than, or in addition to, the technology itself” (p. 684). Thus, it is important to also consider the effects of computer anxiety on CMC use.

Writing apprehension, oral communication apprehension and computer anxiety and their effects on CMC use have been studied separately. There have also been several attempts to combine all three into a measure of CMC apprehension. Scott and Timmerman (2005) write, “if several distinct apprehension types help explain communication technology use at work, then efforts to combine such apprehension measures may prove useful as an

even more specific way to examine this issue” (p. 685). Thus, they are explored here as both individual constructs and as a combined measure.

### **Writing apprehension**

Mabrito (1991 and 2000) found that writing apprehension affects not only the amount of use of CMC, but also strategies for communication using CMC. Writing apprehension (WA) refers to an avoidance of written tasks, a feeling of frustration and poor performance when faced with a writing task and a fear of having one’s writing read publicly and evaluated (Daly, 1977, Daly and Miller, 1975, Scott and Timmerman, 2005, Mabrito 1991 and 2000). Research in this area has principally been concerned with writing in an academic setting and business communication.

In the academic setting, researchers have found that high apprehensive writers — as measured by Miller and Daly’s 20-item Writing Apprehension Scale (WAS) — have less success in basic writing courses, avoid advanced writing courses and perceive their writing as being less successful (Daly and Miller, 1975). Additionally, researchers have demonstrated a correlation between high writing apprehension and poor performance on the verbal portion of the SAT (Daly and Miller 1975). Writing apprehension in the organizational setting principally manifests itself in avoidance of jobs that require writing tasks (Faris, Golen and Lynch, 1999).

In regards to computer-mediated communication, Mabrito (1991) studied collaborative, peer writing groups in both a face-to-face classroom setting and organized email

tasks. Mabrito theorizes that CMC presents a less threatening environment than face-to-face interactions because participants are “freed during computer-mediated exchanges from both the need for teacher permission and the constraints of the public scrutiny of classmates” (p. 511). This was supported by the fact that while their low writing apprehensive peers contributed more ideas in both face-to-face meetings and in email exchanges, high-apprehensive writers preferred email communication. High apprehensive writers, as measured by Miller and Daly’s (1975) Writing Apprehension Test, contributed more to group conversations via email than in face-to-face meetings and their input via email exhibited more risk taking by making more directive suggestions to their peers.

In a second study comparing students’ discussions in a local and global newsgroup, Mabrito (2000) found similar support for his thesis that writing apprehension affects both the amount of CMC communication and communication strategies. Low-apprehensive business students again contributed more messages to both types of newsgroups. Low-apprehensive writers’ messages were longer, as measured by mean number of words per message, and low-apprehensive students were more likely to initiate comments for discussion than their high-apprehensive peers. High-apprehensive writers, however, contributed more freely in the global newsgroup, contributing a larger number of messages containing more words, compared to the local newsgroup. The high-apprehensive writers also initiated more topics of discussion in the global newsgroup.

Mabrito (2000) also found that writing apprehension affects attitudes towards CMC. Low-apprehensive students were more comfortable contributing to the discussions, felt that

their ideas were being taken seriously and felt more comfortable initiating conversation in both the local and global newsgroups than high-apprehensive students. High-apprehensive students, however, gave a much more favorable evaluation to the global than the local newsgroup. Interestingly, high-apprehensive writers also reported greater ease writing down their thoughts and greater enjoyment in the global newsgroup than their low-apprehensive peers. Mabrito attributes his findings to the fact that high-apprehensive writers “in general experience a higher degree of stress when writing for ‘public view’ so they may experience less stress writing on a computer network, with its physical and psychological sense of remoteness” (Mabrito, 2000, p. 41).

Mabrito’s conclusions, however, do not square with that of other researchers. Scott and Rockwell (1997), Scott and Timmerman (2005) and Brown et. al. (2002) all concluded writing apprehension fails to significantly predict CMC use. Scott and Rockwell (1997) studied the effects of writing apprehension on the adoption of 16 “new technologies,” as well as giving speeches and writing papers. Writing apprehension only significantly affected writing papers, not word processing, using email or electronic discussion groups. Scott and Timmerman (2005) reached almost identical conclusions, adding online chat, instant messaging, and use of the World Wide Web to the list of communication activities that writing apprehension fails to affect. Brown et. al. (2002) also found that writing apprehension does not significantly predict use of email, concluding, “email is evolving as a form of oral, rather than written communication” (p. 1). These findings that writing apprehension does not affect use of various text-based CMC tools, however, could be the result of flawed research design.

Brown et. al. (2002) recognize that email has both formal and informal applications. In their survey design, however, these distinct purposes of email are lost. Thus, the subject, who would naturally want to avoid feelings of apprehension, is allowed to assume an informal application of email. Informal uses of email are less likely to carry with them an expectation of evaluation, fear of which is perhaps the most salient characteristic of writing apprehension. The potential lack of expected evaluation, then, may explain why Brown et. al. (2002), Scott and Rockwell (1997) and Scott and Timmerman (2005) reach the conclusion that writing apprehension does not affect CMC use, while Mabrito's research (1991 and 2000), which focuses on more formal forms of writing, does find a correlation between writing apprehension and CMC use.

### **Oral communication apprehension**

Scott and Rockwell (1997), Scott and Timmerman (2005) and Brown et. al. (2002) did conclude that there is a significant correlation between oral communication apprehension and CMC use. Thus far, this paper has referred to communication apprehension as an umbrella term, which might be applied to oral, written or computer-mediated communication (the term is used in literature even to describe aversion to singing) (McCroskey and Richmond, 1987). But the term is also used specifically to refer to oral communication as measured by McCroskey's (1986) Personal Report of Communication Apprehension, or PRCA (see Appendix 2). Again, it is important to note that the PRCA scale does not purport to be a direct measure of actual communication. Rather, it is a measure of anxiety related to

anticipated communication (Chan and McCroskey, 1987). However, like other forms of apprehension, oral communication apprehension is assumed to be a trait, and thus, stable across communication situations. Furthermore, McCroskey has demonstrated that oral communication apprehension is a significant antecedent to actual communication behavior (Chan and McCroskey, 1987; Zakahi and McCroskey, 1989; McCroskey, 1992).

This has been illustrated using the Willingness to Communicate (WTC) scale, which McCroskey developed as a follow-up to the PRCA scale. As mentioned before, communication apprehension has been associated with introversion, anomie and alienation, low self-esteem, cultural divergence and deficient communication skills. Together, these are the antecedents to willingness to communicate (MacIntyre, 1994). The WTC scale was developed with the underlying assumption that “individuals exhibit regular willingness-to-communicate tendencies with regard to frequency and amount of talk... which suggests the existence of a personality variable” (McCroskey and Richmond, 1990. P. 134). This personality trait — willingness to communicate — is an individual’s predisposition to initiate communication. Again, the assertion that there exists a trait-like predisposition requires that WTC scores be correlated across different contexts and receivers. Thus, the WTC scale, which is a 20-point scale (though only twelve items are scored) includes items related to four contexts — communication in public, meetings, small groups and dyads — and three types of receivers — strangers, acquaintances and friends (McCroskey and Richmond, 1990). The WTC scale produces two scores, which are a general WTC score, as well as seven sub-scores for each of the contexts and types of receivers.

What differentiates the WTC scale from the PRCA scale is that the WTC scale not only measures communication apprehension, but also takes things one step further by trying to predict actual communication behavior. In one study, college students in three separate classes — geography, philosophy and mathematics courses — agreed to participate in the study and completed the WTC scale on the first day of class (Chan and McCroskey, 1987). Then students were observed on three different class days – at the beginning, middle and end of the term. Of those students who scored one standard deviation above the mean WTC score, and were labeled as having a high WTC, 50% of those students participated in each of the class meetings. On the other hand, only one quarter of those students who were labeled as having a low WTC participated in the class discussions.

Even though the WTC scale may seem more evolutionarily advanced, the PRCA scale is preferred here because it shares more in common with the methods used to measure the other apprehension types. But the WTC scale is still relevant because of the fact that oral communication apprehension is the principal antecedent to WTC, thus we can expect the two measures to have similar behavioral outcomes (McCroskey and Richmond, 1987). In their studies of communication apprehension and CMC use, Scott and Rockwell (1997) found that the PRCA not only explains use of oral based technologies, including use of a cellular phone and advanced phone capabilities, but for several text-based technologies, including using online services and even writing a paper (Scott and Rockwell, 1997).

Brown et. al. (2002) also concluded that communication apprehension is negatively correlated not only with use of email, but also with satisfaction when using email. In a later



study, however, Scott and Timmerman (2005) found that communication apprehension only significantly predicts use of audio conferencing, speaker and cellular phones.

### **Computer apprehension**

However, without examining computer apprehension, communication apprehension explains a part of the overall picture. Technology apprehension has been labeled many things: technophobia, technostress, technoangst, computerphobia, cyberphobia, etc. (Scott and Rockwell, 1997). The most commonly used terms are computer anxiety or computer apprehension (Scott and Rockwell, 1997, Scott and Timmerman, 2005 and Brown et. al., 2002). Computer apprehension refers to fear of using a computer, which is “disproportionate to the actual threat presented by the computer” (Scott and Timmerman, 2005, p. 686). Computer apprehension has been shown to be negatively correlated with use, performance outcomes and satisfaction when using a computer (Brown et. al., 2002).

Computer apprehension got a lot of attention in the late 1980s and 1990s when the introduction of the personal computer to the workplace was most rampant. During this period the majority of employees surveyed reported feeling unprepared to integrate these new technologies into their jobs. This produced symptoms that were as extreme as discomfort, headaches, heart palpitations and nausea (Scott and Rockwell, 1997). Experience using a computer is negatively correlated to computer apprehension, thus it is assumed that as the workforce becomes younger and is staffed by employees who grew up with personal computers in their households and schools — not to mention video games, cellular phones

and other digital technologies —computer apprehension will fall in the workplace (Scott and Rockwell, 2005, Brown et. al., 2002). The majority of the workforce, however, is still considerably older than the digital generation, which is just now entering the workforce. Additionally, recent studies of college-age students for whom technology has been rather ubiquitous in their lives show enough variance in levels of computer apprehension to be a statistically significant predictor of CMC use (Brown et. al., 2002).

Computer apprehension research is limited by two factors. The first is that the research has focused principally on studying the causes of computer apprehension exclusively, at the cost of exploring the outcomes of such apprehension (Scott and Rockwell, 1997; Scott and Timmerman, 2005, Brown et. al., 2002). Some of the causes studied are computer experience, math and programming abilities (Scott and Rockwell, 1997). Of the more than a handful of studies that investigated the effects of gender on computer apprehension, an almost equal number of studies that have found a correlation between computer apprehension and gender as those that reject a relationship (Scott and Rockwell, 1997). Others still posit that the apparent correlation between gender and computer apprehension disappears when differences in amounts of experience with computers are included.

The second factor limiting the applicability of the computer apprehension scale is that it is mathematically and technically oriented (Scott and Timmerman, 2005). In the mainframe era and in the early days PCs running Microsoft's Disk Operating System (DOS), a command-line interface, users were required to have at least a rudimentary understanding of

basic programming syntax. In today's plug-and-play world with highly sophisticated visual interfaces, math and programming skills hardly seem relevant. Yet, Raub's (1981) 10-item, Likert scale, which includes the statement, "I am unsure of my ability to learn a computer programming language," is still widely used in studies of CMC (Scott and Rockwell, 1997, Scott and Timmerman, 2005, Brown et. al., 2002).

Despite the limitations of the computer apprehension measure, researchers have shown that it is still a good predictor of CMC use, performance outcomes and attitudes towards CMC (Brown et. al., 2002). Brown et. al (2002) found that computer apprehension was a statistically significant predictor of email use. Scott and Rockwell (1997) found that computer apprehension is significantly correlated with use of almost all of the 16 "new technologies" they studied, except cable television, satellite television and cellular phones. It is interesting that the correlation between computer apprehension and computer programming was relatively weak in this study, despite it being the most technical/mathematical. Whether this reveals a conceptual weakness in the measure or is simply an aberration is not clear, because a second study using almost identical methods Scott and Timmerman (2005) found that a strong correlation between computer apprehension and computer programming (Scott and Timmerman 2005).

### **CMC apprehension**

Scott and Timmerman (2005) wrote that, "if several distinct apprehension types help explain communication technology use...then efforts to combine such apprehension measures

may prove useful as an even more specific way to examine the issue” (p. 685). This combined measure was called computer-mediated communication apprehension (Scott and Timmerman, 2005) or CMC anxiety (Brown et. al., 2002). Based on the assumption that writing apprehension does not affect CMC use, Scott and Timmerman’s measure was based on a modified version of McCroskey’s (1970) 10-item Personal Report of Communication Apprehension (PRCA). For example, instead of containing the statement “I look forward to the opportunity to speak in public” the modified scale read “I look forward to the opportunity to interact with others on the computer” (pp. 716-717). Using this measure of CMC apprehension, the researchers found that the scale was a stronger predictor than oral communication apprehension, writing apprehension and computer apprehension for use of email, chat, instant messaging and computer, audio and video conferencing. They concluded that,

CMC apprehension shows promise as a predictive tool...There is a clear indication that the CMC apprehension measure is especially related to text-based new communication technologies and to group-based conferencing tools, which are more common in organizational environments (p. 712).

Brown et. al. (2002) take a different approach to developing what they call a CMC anxiety measure. Rather than conceptualizing CMC anxiety as a general anxiety, their measure of CMC is application-specific, focusing only on email. To develop the measure, the team followed a multi-stage, iterative process. They reviewed existing scales, then established a set of items, which they evaluated for face validity with the help of a panel of experts. Then they solicited colleagues to evaluate the items’ wording to help establish the final measure. The researchers found that their CMC anxiety measure explained 52% of the variance in

satisfaction with CMC use and 12% of the variance in usage of CMC tools. However, while their findings confirm that there exists an application-specific measure of CMC anxiety, a measure of CMC anxiety that has broader applicability to a wider range of CMC technologies, such as that put forth by Scott and Timmerman (2005) would prove much more useful.

### **Internet self-efficacy**

Internet self-efficacy is an extension of computer self-efficacy, which is defined as “a person’s perception of their ability to learn and use computers and computer programs” (Nowak and Krmar, 2003, p. 7). Computer self-efficacy, and self-efficacy generally, are important predictors not only of computer use, but the level of success one will experience when using a computer, because self-efficacy is also a predictor of the effort and persistence a person will put forth when faced with a given task. In their study, Nowak and Krmar (2003) found a positive correlation between computer self-efficacy, general computer use and perceptions of careers involving a high degree of computer use. However, when the researchers honed in on use of computers for communication, there was not a significant relationship between computer self-efficacy and use of the computer for communication. Though this finding is contradicted by Minsky and Marin (1999) who did find a positive correlation between faculty members’ computer-self efficacy and use of e-mail for communication, Nowak and Krmar’s results may again highlight the importance to examine not only the communication technology, but also the communication task.

Studies of Internet self-efficacy do a better job of examining both the technology, as well as the communication task. Hong (2006) found that there is a positive correlation between Internet self-efficacy and the ability to search out credible health-related information online, while Chung (2007) found a strong correlation between Internet self-efficacy and perceived usefulness of IM.

## HYPOTHESES

Based on the proceeding literature review, this study proposes five hypotheses:

H1. Writing apprehension is negatively correlated with reported use of social networking websites.

H2. Oral communication apprehension is negatively correlated with reported use of social networking websites.

H3. Computer apprehension is negatively correlated with reported use of social networking websites.

H4. CMC apprehension is negatively correlated with reported use of social networking websites.

H5. A combined measure of CMC apprehension better explains variance in reported use of social networking websites than each of the individual communication apprehension measures.

H6: Internet self-efficacy is positively correlated with use of social networking website use.

RI: Does gender have an effect on the use of social networking websites?

## METHODS

### **Sampling method**

Survey data was collected using a convenience sample of freshman college students enrolled in introductory courses from two different Florida colleges. Participants were recruited by contacting professors from course listings accessed online at the participating institutions. Surveys were distributed during normal class hours. There was no incentive offered to participate. Responses were kept confidential.

### **Response rate and participant demographics**

A total of 192 surveys were distributed and 186 completed surveys were returned for a response rate of 97%. Eighty-three men and 103 women completed surveys. Almost all of the respondents were 18-24 years old; three were 25-34 years old, all of whom had completed some college. One respondent had completed an associate's degree.

In regards to access to the Internet, the respondents were extremely wired: 171 (92%) of the respondents access the Internet "several times a day," while 15 (7.6%) respondents access the Internet "about once a day" (see Figure 9). One-hundred-eighty-three (98.4%) of respondents had regular access to a high-speed Internet connection. Only three (1.6%) used a dial-up connection to access the Internet. One-hundred-seventy-three (93%) respondents visit social networking websites: 169 (91%) visit those websites at least once a week, while 135 (73%) visit those websites daily. One-hundred-sixty-nine respondents (91%) maintain a



social networking profile, while 59 (32%) of respondents update their profiles at least weekly.

## **Measures**

Oral communication apprehension was measured using a modified version of McCroskey's PRCA scale ( $\alpha=.845$ ) (see Table 2 and Appendix 1). In previous literature on CMC apprehension, Scott and Rockwell (1997), Scott and Timmerman (2005) and Brown et al. (2002) all used an earlier, 10-item version of McCroskey's PRCA scale, although as early as 1992, McCroskey himself calls attention to a flaw in that this earlier version focuses almost exclusively on public speaking, calling into question whether the scale really measured trait-like communication apprehension, or only state-like apprehension (McCroskey and Richmond, 1992). To deal with this potential problem, this study employed McCroskey's updated PRCA scale, which was shortened to eight questions from its original form — as were the other scales in this study — since producing sub-scores for different speaking contexts and receivers is beyond the scope of this study.

Writing apprehension was measured using a modified version of Daly and Miller's (1975) scale, a 20-item scale (see Table 2 and Appendix 2) ( $\alpha=.829$ ). Computer apprehension was measured using a modified version of Raub's (1981) 10-item measure ( $\alpha=.814$ ) (see Table 2 and Appendix 3). Computer-mediated communication apprehension was measured using a modified version of Scott and Timmerman's (2005) scale, adopted from McCroskey's (1970) 10-item PRCA scale ( $\alpha=.810$ ) (see Table 2 and Appendix 3).

Currently there is not a widely accepted scale for Internet self-efficacy (Erik and Chen-Chao, 2006). However, Erik and Chen-Chao propose a measure based on a series of pre-tests, which was also used in this study ( $\alpha=.871$ ) (see Table 2 and Appendix 4). Finally, use of social networking website use was measured using two questions from an earlier survey conducted by the Pew Internet and American Life Project (Appendix 5).

### **Data analysis**

Each of the apprehension scales, as well as Internet self-efficacy, were measured using an eight-question, 5-point, Likert scale, “strongly disagree” to “strongly agree.” To produce individual communication and self-efficacy scores for each measure, the Likert scales were converted during data analysis into a numerical scale. One assumes very low or non-existent communication apprehension while 5 assumes high communication apprehension. The same is true for Internet self-efficacy. Some questions like, “I am calm and relaxed while participating in group discussion,” were re-coded to reflect this convention. The individual responses to the items of a given measure were added together and divided by the number of questions in that measure to produce a final score, which ranged from 1 to 5 (see Table 3).

Social networking website use was examined both in terms of frequency of visiting social networking websites, as well as frequency of updating one’s personal profile.

To test the hypotheses, regression analysis was used. Communication apprehension or self-efficacy was the independent variable, while social networking website use — both frequency of visits to these sites and frequency of updating one’s personal profile — were

the dependent variables.

## RESULTS

H1, that oral communication apprehension is negatively correlated with reported use of social networking websites, was not supported by the data (see Table 5). When comparing oral communication apprehension and visits to social networking websites, the model itself proved not to be significant ( $F(1, 185)=1.513, R^2=.181, p >.05$ ), as did the very small negative correlation coefficient ( $\beta=-.108, p >.05$ ) (see Tables 6 and 9). McCroskey's PRCA scale also failed to significantly describe the relationship between oral communication apprehension and frequency of updating one's personal social networking profile ( $F(1,185)=1.676, R^2=.146, p >.05$ ) (see Tables 7). Again, a very small negative relationship was observed but it was also not significant ( $\beta=-.086, p >.05$ ) (see Table 8).

H2, that writing apprehension is negatively correlated with reported use of social networking websites, also was not supported by the data (see Table 5). Daly's Writing Apprehension Scale proved to be not significant when applied to social networking website visits ( $F(1,185)=.849, R^2=.181, p >.05$ ) or updates to personal profiles ( $F(1,185)=.823, R^2=.146, p >.05$ ) (see Figures 6 and 7). The direction of the correlation coefficients were also split: while there was a statistically not significant but slight positive relationship between writing apprehension and visits to social networking websites ( $\beta=.053, p >.05$ ), there was a negative relationship between writing apprehension and frequency with which one updated his/her profile ( $\beta=-.013, p >.05$ ) (see Tables 8 and 9).

H3, that computer apprehension is negatively correlated with reported use of social

networking website use was also not supported by the data (see Table 5). Raub's scale did produce a significant model to explain visits to social networking websites ( $F(1,185)=2.729$ ,  $R^2=.181$ ,  $p < .01$ ), but not updating one's personal profile ( $F(1,185)=.735$ ,  $R^2=.146$ ,  $p > .05$ ) (see tables 6 and 7). Neither regression coefficients, though, was statistically significant ( $\beta=-.053$ ,  $p > .05$  and  $\beta=.000$ ,  $p > .05$ , respectively) (see Tables 8 and 9).

H4, that CMC apprehension is negatively correlated with reported use of social networking websites, was strongly supported by the data (see Table 5). The scale significantly explained the relationship between CMC apprehension and visits to social networking websites ( $F(1,185)=5.461$ ,  $R^2=.181$ ,  $p < .01$ ) (see Table 6). As CMC apprehension increased, visits to social networking websites also decreased ( $\beta=-.407$ ,  $p < .01$ ) (see Table 9). The scale also significantly explained the relationship between CMC apprehension and frequency of updating one's profile ( $F(1,185)=5.835$ ,  $R^2=.146$ ,  $p < .01$ ) (see Table 7). As CMC apprehension increased, updates to one's profile decreased ( $\beta=-.349$ ,  $p < .01$ ) (see Table 8). Because the other models failed to reach significance, H5, that a combined measure of CMC apprehension better explains variance in reported use of social networking websites than each of the individual communication apprehension measures, is also supported by the data.

H6, that Internet self-efficacy is positively correlated with use of social networking website use was not supported by the data (see Table 5). Internet self-efficacy produced a significant model to explain visits to social networking websites ( $F(1,185)=2.062$ ,  $R^2=.181$ ,  $p < .05$ ) (see Table 6). The data, though, hinted at a negative, albeit weak and statistically not

significant, relationship between Internet self-efficacy and visits to social networking websites ( $\beta = -.102, p > .05$ ). The same was true of updating one's profile ( $\beta = -.008, p > .05$ ), though that model was significant ( $F(1,185) = 1.050, R^2 = .146, p < .05$ ).

R1, on the effect gender has on use of social networking websites, did indeed find a significant relationship between gender and use of social networking websites (see Tables 6, 7, 8 and 9). Females were slightly more likely to both visit these sites, as well as update their social networking profiles than were males ( $\beta = .179, p < .05$  and  $\beta = .142, p < .05$ , respectively) (see Tables 8 and 9).

## DISCUSSION

By surveying college students 18 to 24 this study puts a microscope to those students who are among the heaviest users of social networking websites and are among the most technically ambitious, if not technically literate (Lenhart and Madden, 2007). Of the survey respondents, 128 (69%) either agreed, or strongly agreed, with the statement: “I am interested and intrigued by complicated tasks on the Internet/Web.”

Because they’re so plugged in, it’s no surprise that computer apprehension scores among this group would be relatively low. The mean computer apprehension score was 1.92 (SD=.661). Though, for a sample that is so wired, it might be surprising Internet self-efficacy scores were not higher. The mean Internet self-efficacy score was only 3.44 (SD=.709). Where the world is changing fastest — online — these students are also unsure and are looking for stronger guidance. Only 61 (33%) respondents agreed or strongly agreed with the statement “I can learn everything I need to know about the Internet/Web without anyone’s assistance.”

Yet, most college courses in basic communication focuses almost exclusively on writing and public speaking. For example, at the college where the majority of the sample was drawn, all freshmen are required to take an introductory English composition course which “emphasizes expository writing, the basics of library research and documentation and the objective voice,” according to the course’s syllabus.

There is no required course to emphasize communicating via a computer because the

same college “expects students entering the university to possess significant computer skills.” However, schools also expect students to have significant writing skills, yet require composition because they recognize how undeveloped the students’ skills actually are. The same is true for many students’ computer skills, especially in the arena of computer-mediated communication. That CMC apprehension best predicts the use of social networking website use underscores what Scott and Timmerman (2005) emphasized. When studying communication, one must examine not only the communication task, but the technology used to communicate.

In regards to technology, an interesting observation in this study is that while the traditional assumption holds that women are less likely to use computers (Scott and Rockwell, 1997) the opposite appears to be true in regards to social networking website use. Women are actually more likely to visit social networking websites and to update their social networking profiles than men. In a different study, Jooan and Boraе (2005) found that women have higher interpersonal motivation to use phone technology to communicate and are more likely than men to utilize text messaging. Perhaps as the computer and the Internet develop as social communication tools, women are gravitating more towards using computer technology and whatever gender gaps have been present are closing, as Raman et. al. (2006) suggest.

The sample size used in this study, however, was relatively small. The sample was also relatively uniform in regards to Internet access and education, which is why gender was the only confounding variable analyzed. With a larger number of responses it might have been



possible to observe more significant relationships between communication apprehensions and social networking website use, and investigate other variables. But researchers have used even smaller samples and have observed meaningful relationships using very similar models (Scott and Rockwell, 1997, Mabrito, 2000, Clark and Jones, 2001, Campbell and Neer, 2001 and Scott and Timmerman, 2005). This lends a level of confidence that the lack of a meaningful relationship observed in this study between writing apprehension, oral communication apprehension, computer apprehension, Internet self-efficacy and social networking website use is meaningful.

That said, it is not surprising that those measures of apprehension that only examine the communication task — writing apprehension and oral communication apprehension — and not the technology used to communicate would not significantly explain the use of social networking website use. However, that oral communication apprehension does not explain use text-based CMC technologies contradicts Scott and Rockwell (1997), Scott and Rockwell (1997) and Brown et. al.'s (2002) findings. This may be in part because this study used an updated version of McCroskey's PRCA scale, which reached beyond fear of public speaking, based on McCroskey's concern that the previous scale did not really measure oral communication accurately (McCroskey and Richmond, 1992). When individual items of the updated scale that addressed public speaking were analyzed, there does appear to be a relationship between public speaking and use of social networking websites. It may be that McCroskey's older PRCA scale would be able to predict social networking website use. But it is also possible that just as email has evolved beyond the written memo and thus use of

email is not explained by Daly and Miller's (1975) scale, social networking websites have evolved beyond traditional forms of oral communication, perhaps because of the different social norms of the Web offered by its relative anonymity.

Why does computer apprehension not explain use of social networking websites? Perhaps it is because Raub's scale weighs the technology but not the communication task (the same is true for Internet self-efficacy). Furthermore, the scale has hardly been updated since it was first developed. In today's plug-and-play world, again we have to consider how relevant the scale is. That is not to say these scales have no bearing on social networking website use. However, there needs to be greater observation of how social networking websites and other online technologies are being used to communicate. The apprehension scales used by communication researchers have been relatively unchanged for some decades and could likely be updated to better reflect today's prevailing communication technologies.

Presently one cannot say that a student's future academic and professional success hinges on use of social networking websites. However, Pew's data illustrates the increasing role these websites have in individuals' personal lives and in educational and professional settings (Lenhart and Madden, 2007). The effect of CMC apprehension on how individuals are evaluated in these settings has not been studied. But as social networking websites and related technologies grow in importance, it is reasonable to expect that CMC apprehension's effects on individuals' success would be similar to the effects that writing and oral communication apprehension have. High-apprehensive communicators get lower grades in the classroom, are less likely to get hired and promoted, and as a result have a lower earning

potential than their low-apprehensive peers (McCroskey and Richmond, 1987, Richmond and Roach, 1992).

Communication apprehension does not have to be a life sentence. Researchers have demonstrated successful ways to reduce communication apprehension through classroom instruction (McCroskey and Richmond, 1990). Perhaps, then, education of the students surveyed in this study — at least in regards to communication — is trending in the right direction. Despite the traditional objectives of the English 101 class most of these students are taking, they are required to post three essays and three responses to a blog or other public online forum.

The syllabus, however, notes that teachers' approach to this assignment and the degree to which it is related to the course work varies greatly. Also, the course does not appear to include any instruction on how these online forums might vary from a traditional written essay and how one might vary his or her communication style accordingly. Performance on this assignment constitutes only 13% of the final grade.

Pedagogy, though, is beyond the scope of this study. There is little understanding as to how to treat CMC apprehension because it is a relatively new concept in communication theory. However, the fact that Scott and Timmerman's (2005) model has been successfully applied to explain an additional form of computer-mediated communication — use social networking websites — gives hope that it is a strong model that can be applied to future studies of online communication. Hopefully, these future studies will give insight into and applications for these pedagogical issues which will address students' yearning for stronger

instruction in this area.

TABLES

**Table 1 — List of social networking websites<sup>2</sup>**

<i>Name</i>	<i>Description/Focus</i>	<i>User count</i>
43 Things	Tagging	627,000
BlackPlanet.com	African-Americans	16,000,000
Bebo	Schools and colleges	22,000,000
Classmates.com	School, college and work	40,000,000
Cyworld	Young South Koreans	15,000,000
Dandelife	Collective narratives	unknown
Dodgeball.com	Mobile location-based service	unknown
Facebook	College/High School students	16,000,000
Flirtomatic	Flirting/Dating	265,000
Flickr	Photo sharing	4,000,000
Friendster	General	29,100,000
GoPets	Virtual pets	400,000
Graduates.com	School, college, and work	650,000
GreatestJournal	Blogs, based on LiveJournal	1,514,865
Joga Bonito	Football (soccer)	Unknown
LinkedIn	Business	8,500,000
LiveJournal	Blogging	10,921,263
MEETin	General	67,000
MiGente.com	Latinos	3,600,000
Multiply	Real world relationships	3,000,000
myGamma	Cell phones	1,360,000
MySpace	General	155,000,000
myYearbook	General	950,000

<sup>2</sup> Researcher's note: The above list is taken from Wikipedia, an encyclopedia of user-submitted entries. While information in Wikipedia is not always accurate, this list, including the number of users for each site, was well cited from multiple mainstream media sources and the websites themselves. For a full list of these citations visit [http://en.wikipedia.org/wiki/List\\_of\\_social\\_networking\\_websites](http://en.wikipedia.org/wiki/List_of_social_networking_websites). This list was accessed Feb. 22, 2007.

orkut	Owned by Google	41,000,000
Phrasebase	Foreign Languages	100,000
RateItAll	Consumer ratings	900,000
Rediff Connexions	India	1,400,000
Reunion.com	Locating friends and family	25,000,000
Sconex	American high schools	500,000
TakingITGlobal	Social action	116,000
Threadless	Custom T-shirts	364,474
Travellerspoint	Travel	82,000
Vampire Freaks	Gothic industrial culture	766,000
VietSpace	Vietnamese	20,000
Windows Live Spaces	Blogging	30,000,000
Xanga	Blogs and "metro" areas	40,000,000
Yahoo! 360°	Linked to Yahoo! IDs	4,700,000
Yelp	United States adults	unknown
Zaadz	Social consciousness	36,467

**Table 2 - Confirmatory Factor Analysis of survey questions**

<i>Question</i>	<i>PRCA</i>	<i>Writing Apprehension</i>	<i>CMC Apprehension</i>	<i>Internet Self- Efficacy</i>	<i>Computer Apprehension</i>
PRCA1	.820				
PRCA2	-.807				
PRCA3	-.776				
PRCA4	.791				
PRCA5	-.548				
PRCA6	.529				
PRCA7	.633				
PRCA8	-.613				
WriteApp1		.789			
WriteApp2		-.696			
WriteApp3		-.770			
WriteApp4		.645			
WriteApp5		.690			
WriteApp6		-.351			
WriteApp7		-.820			
WriteApp8		.660			
CMCApp1			-.823		
CMCApp2			.737		
CMCApp3			.743		
CMCApp4			.326		
CMCApp5			.613		
CMCApp6			-.761		
CMCApp7			-.739		

CMCApp8			.580		
ISE1				.727	
ISE2				.597	
ISE3				.811	
ISE4				.677	
ISE5				-.569	
ISE6				-.689	
ISE7				-.617	
ISE8				.590	
CompApp1					-.778
CompApp2					.694
CompApp3					-.833
CompApp4					.795
CompApp5					.511
CompApp6					.723
CompApp7					.780
CompApp8					.767
<i>Reliability (Cronbach's alpha)</i>	.845	.829	.814	.810	.871



**Table 3 – Mean communication apprehension and Internet self-efficacy scores**

	<i>Mean*</i>	<i>Standard deviation</i>
Communication apprehension	2.57	.698
Writing apprehension	2.58	.754
Computer apprehension	1.92	.661
CMC apprehension	2.27	.581
Internet self-efficacy	3.44	.709

*\* Scores range from 1-5, with 5 representing high apprehension and Internet self-efficacy.*

**Table 4 – Internet and social networking website use**

	<i>Several times daily</i>	<i>Once daily</i>	<i>3 to 5 times weekly</i>	<i>1 to 2 times weekly</i>	<i>Every few weeks</i>	<i>Less often</i>	<i>Don't know or never</i>
Access the Internet	171 (92%)	15 (8%)	-	-	-	-	-
Visit social networking websites	81 (44%)	54 (29%)	20 (11%)	14 (7.5%)	2 (1%)	1 (.5%)	1 (.5%)
Maintain a social networking profile	10 (5%)	12 (6.5%)	12 (6.5%)	26 (14%)	53 (28%)	52 (28%)	21 (11.3%)

**Table 5: Summary of Hypotheses and Results**

<i>Hypothesis</i>	<i>Results</i>
<b>H1:</b> Writing apprehension is negatively correlated with reported use of social networking websites.	<b>Not Supported:</b> McCroskey's PRCA scale did not reach statistical significance.
<b>H2:</b> Oral communication apprehension is negatively correlated with reported use of social networking websites.	<b>Not supported:</b> Daly's Writing Apprehension Scale did not reach statistical significance.
<b>H3:</b> Computer apprehension is negatively correlated with reported use of social networking websites.	<b>Not supported:</b> Raub's computer apprehension Scale did not reach statistical significance.
<b>H4:</b> CMC apprehension is negatively correlated with reported use of social networking websites.	<b>Supported:</b> The CMC apprehension scale explained both visits to social networking websites and frequency of updating one's social networking profile.
<b>H5:</b> A combined measure of CMC apprehension better explains variance in reported use of social networking websites than each of the individual communication apprehension measures.	<b>Supported:</b> CMC apprehension was the only measure to reach strong statistical significance.
<b>H6:</b> Internet self-efficacy is positively correlated with use of social networking website use.	<b>Partially supported:</b> Internet self-efficacy explained frequency of updating one's social networking profile, but not visits to social networking websites.
<b>R1:</b> Does gender have an effect on the use of social networking profiles?	<b>Yes:</b> Women are slightly more likely than men to both visit social networking websites, as well as to update their social networking profiles.

**Table 6 - Analysis of Variance for How Often Respondents Visited  
A Social Networking Site**

		<i>df</i>	<i>F</i>	<i>Mean Square</i>
PRCA	Between Groups	7	1.513	.723
	Within Groups	178		.478
	Total	185		
Writing Apprehension	Between Groups	7	.849	.485
	Within Groups	178		.572
	Total	185		
Computer Apprehension	Between Groups	7	2.729 <sup>b</sup>	1.118
	Within Groups	178		.410
	Total	185		
CMC Apprehension	Between Groups	7	5.461 <sup>b</sup>	1.576
	Within Groups	178		.289
	Total	185		
Internet Self-Efficacy	Between Groups	7	2.062 <sup>a</sup>	.990
	Within Groups	178		.480
	Total	185		

**Table 7 - Analysis of Variance for How Often Respondents Updated their Social Networking Site Profile**

		<i>df</i>	<i>F</i>	<i>Mean Square</i>
PRCA	Between Groups	7	1.676	.796
	Within Groups	178		.475
	Total	185		
Writing Apprehension	Between Groups	7	.823	.471
	Within Groups	178		.572
	Total	185		
Computer Apprehension	Between Groups	7	.735	.324
	Within Groups	178		.441
	Total	185		
CMC Apprehension	Between Groups	7	5.835 <sup>b</sup>	1.663
	Within Groups	178		.285
	Total	185		
Internet Self-Efficacy	Between Groups	7	1.050	.523
	Within Groups	178		.498
	Total	185		

a.  $p < .05$

b.  $p < .10$

**Table 8 - Summary of Hierarchical Regression Analysis for Variables Predicting How Often Respondents Updated their Social Networking Profiles**

		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Total R<sup>2</sup></i>	<i>Adjusted R<sup>2</sup></i>	<i>R<sup>2</sup> Change</i>
1	Gender	.457	.246	.136	.018	.013	.018
2	Gender	.479	.248	.142 <sup>a</sup>	.146	.177	.128
	PRCA	-.211	.171	-.086			
	Writing Apprehension	-.030	.162	-.013			
	Computer Apprehension	-.001	.273	.000			
	CMC Apprehension	-1.030	.255	-.349 <sup>b</sup>			
	Internet Self-Efficacy	-.019	.261	-.008			

c.  $p < .05$

d.  $p < .10$

**Table 9 - Summary of Hierarchical Regression Analysis for Variables Predicting How Often Respondents Visited Social Networking Sites**

		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Total R<sup>2</sup></i>	<i>Adjusted R<sup>2</sup></i>	<i>R<sup>2</sup> Change</i>
1	Gender	.986	.412	.174 <sup>a</sup>	.030	.025	.030
2	Gender	1.016	.409	.179 <sup>a</sup>	.181	.154	.151
	PRCA	-.448	.282	-.108			
	Writing Apprehension	.202	.268	.053			
	Computer Apprehension	-.234	.451	-.053			
	CMC Apprehension	-	.421	-			
	Internet Self-Efficacy	2.022		.407 <sup>b</sup>			
		-.415	.431	-.102			

a.  $p < .05$

b.  $p < .10$

## APPENDICES

### **Appendix 1 — PRCA scale**

**DIRECTIONS:** This instrument is composed of eight statements concerning feelings about communicating with other people. Please indicate the degree to which each statement applies to you by marking whether you strongly agree, agree, undecided, disagree or strongly disagree. Work quickly; record your first impression.

1. I am tense and nervous while participating in group discussions.
2. I am calm and relaxed while participating in group discussions.
3. I am very calm and relaxed when I am called upon to express an opinion at a meeting.
4. Communicating at meetings usually makes me uncomfortable.
5. Ordinarily I am very calm and relaxed in conversations.
6. I'm afraid to speak up in conversations.
7. Certain parts of my body feel very tense and rigid while giving a speech.
8. I face the prospect of giving a speech with confidence.



## **Appendix 2 — Daly's Writing Apprehension Scale**

**DIRECTIONS:** This instrument is composed of twenty statements concerning feelings about writing. Please indicate the degree to which each statement applies to you by marking whether you strongly agree, agree, undecided, disagree or strongly disagree.

Work quickly; record your first impression.

1. I avoid writing.
2. I have no fear of my writing being evaluated.
3. I look forward to writing down my ideas.
4. My mind seems to go blank when I start to work on a composition.
5. Expressing ideas through writing seems to be a waste of time.
6. I like to have my friends read what I have written.
7. I enjoy writing.
8. I don't like my compositions to be evaluated.

### **Appendix 3 — Raub's Computer Apprehension Scale**

**DIRECTIONS:** This instrument is composed of ten statements concerning feelings about using a computer. Please indicate the degree to which each statement applies to you by marking whether you strongly agree, agree, undecided, disagree or strongly disagree. Work quickly; record your first impression.

1. I am confident that I could learn computer skills.
2. I am unsure of my ability to learn a computer programming language.
3. I will be able to keep up with the important technological advances of computers.
4. I have difficulty understanding most technological matters.
5. I feel apprehensive about using a computer terminal.
6. If given the opportunity to use a computer, I'm afraid I might damage it in some way.
7. Computer terminology sounds like confusing jargon to me.
8. I have avoided computers because they are unfamiliar to me.

#### **Appendix 4 — Scott and Timmerman’s CMC Apprehension Scale**

**DIRECTIONS:** This instrument is composed of eight statements concerning feelings about communicating with others using a computer. Please indicate the degree to which each statement applies to you by marking whether you strongly agree, agree, undecided, disagree or strongly disagree. Work quickly; record your first impression.

1. I look forward to the opportunity to interact with others on the computer.
2. Although I speak fluently with friends, I am at a loss of words when interacting online.
3. I always avoid communicating via computer if possible.
4. I dislike having to limit my communication to what is possible on a computer.
5. I am afraid to voice my opinions when interacting with others on the computer.
6. I would enjoy giving a presentation to others online.
7. I look forward to expressing myself during online meetings.
8. I am afraid to express myself in group discussions online.

### **Appendix 5 - Internet Self-Efficacy Scale**

**DIRECTIONS:** The following instrument contains eight statements about your feelings on using the Internet. Please indicate the degree to which each statement applies to you by marking whether you strongly agree, agree, undecided, disagree or strongly disagree.

1. I am especially eager to try out new or/and evolving technology on the Internet/Web.
2. When encountering difficulties in searching for information online, I never give up until I find what I am looking for.
3. I am interested and intrigued by complicated tasks on the Internet/Web.
4. I am able to accomplish online tasks I have never performed before.
5. People like me will never be able to understand the full possibilities of the Internet/Web.
6. I get easily frustrated when installing new Internet/Web applications.
7. It is difficult for me to publish my own web page on the Internet/Web without other people's assistance.
8. I can learn everything I need to know about the Internet/Web without anyone's assistance.

## Appendix 6 - Social Networking Web site Use and Demographics

DIRECTIONS: This instrument is composed of four questions concerning your use of social networking Websites, such as MySpace, Facebook, etc. Please answer each question to the best of your ability. Work quickly; record your first impression.

1. Do you visit social networking websites, like MySpace, Facebook, Friendster, Xanga, etc.?

Yes                      No (If no, skip to question 3).

2. About how often do you visit a social networking website (select one)?

\_\_\_ Several times a day.

\_\_\_ About once a day.

\_\_\_ 3 to 5 times a week.

\_\_\_ 1 to 2 days a week.

\_\_\_ Every few weeks.

\_\_\_ Less often.

\_\_\_ Don't know.

3. Have you ever created your own profile online that others can see, on a social networking website like MySpace or Facebook (select one)?

Yes                      No (In no, skip question 4).

4. About how often do you update your profile?

\_\_\_ Several times a day.

\_\_\_ About once a day.

\_\_\_ 3 to 5 times a week.

\_\_\_ 1 to 2 days a week.

Every few weeks.

Less often.

Don't know.

### **Demographics**

5. You are ...

Male

Female

6. As of your last birthday, in which of the following age categories did you fall?

18-24

25-34

35-44

45-55

55-64

65 and above

7. How do you most frequently access the Internet

I own a computer at home with dial-up Internet access.

I own a computer at home with high-speed Internet access.

I own a computer on campus with high-speed Internet access provided by a university.

I use a computer at work with dial-up Internet access.

- I use a computer at work with DSL or Broadband access.
- I use a friend, family member or roommates' computer with dial-up access.
- I use a friend, family member or roommates' computer with high-speed access
- I use a public computer in a library, café, etc., with dial-up access.
- I use a public computer in a library, café, etc., with broad-band access.

8. About how often do you access the Internet (select one)?

- Several times a day.
- About once a day.
- 3 to 5 times a week.
- 1 to 2 days a week.
- Every few weeks.
- Less often.
- Don't know.

9. What is the highest level of education you have completed

- Some high school
- High school diploma
- Some college
- Associates or professional degree
- Four-year college degree\_

\_\_ Some post-graduate education



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