The Correlation Between Computer Mediated Communication and Communication Apprehension

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Abstract

Millennials are a generation known for embracing modern technology and are known for defining much of current social culture. The reliance of Millennials on technology surpasses generations’ prior, and according to popular opinion, are a group known to “work differently from everyone else” (Smith, 2012). The research presented in this study targets Millennials—defined as individuals born in the 1980’s- 1990’s (Merriam-Webster, 2013)—by surveying university students about their preferred methods of communication as well as their levels of communication apprehension. Communication apprehension (CA) refers to a trait-like anxiety about communicating, with trait-like CA being a relatively stable personality characteristic (McCroskey, Richmond, & Davis, 1986). The research presented in this study explores the cultural stereotype that Millennials are losing their ability to communicate in face to face (F2F) interactions and are instead relying solely on their electronic communication channels. We wish to explore communication apprehension as a possible factor in the perceived reduction of face-to-face interaction.
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Under the theoretical perspective ‘uses and gratification,’ the following studies support and give reason for our research. As we look into the causes and reasons behind levels of communication apprehension and computer mediated communication it becomes evident that the driving force behind our study is the understanding of ‘uses and gratification.’

Conducting research within a University setting is not only a parsimonious way for an undergraduate research team to collect data, but also represents a subgroup of the population known for engaging regularly with computer mediated communication. It is intentional that we only study members of the University classified as students, and not those in the instructional or administrative role. At a Texas University, a study confirmed that communication apprehension can be dependent upon an individual’s status level within a university’s organizational hierarchy. The individuals studied who identified as subordinate had higher levels of communication apprehension than their superiors (Degner, 2010). By sampling from one status group (students) we will avoid the hierarchy bias.

Our study attempts to answer several questions, but primarily explores whether or not an increase or decrease in communication apprehension affects an individual’s preference to either engage with computer mediated communication or interpersonal communication. Our study suggests that communication apprehension may provide motivation for an individual to engage with computer mediated communication instead of interpersonal communication, which is supported by a study illuminated that fear of interpersonal communication and an entertainment motive drives students to engage with Facebook (Hunt, Atkin & Krishman, 2012).
Computer mediated communication, (CMC) is immensely more common than it was 30 years ago and is a far more respected form of communication, with validity rivaling text or face to face communication methods. The generation we sample has grown up with computer-mediated communication as commonplace and the mere presence of computer-mediated tools does not lead to an increase in communication apprehension (Wrench, Punyanunt-Carter, 2007). This increases the validity of our online survey. Although the presence of computer mediated communication tools does not increase communication apprehension among undergraduate students, the either mandatory or optional nature of engaging with communication—regardless of medium—affects apprehension levels (Normore & Blaylock, 2011). This is another reason why our research is conducted in an optional online formatted survey. The fact that participation in our survey is optional will ensure that a minimal level of communication apprehension will develop as a result of participation—therefore increasing reliability.

Also confirming the validity of our study is research from a Midwestern University, which confirmed that gender does not correlate to an individual’s willingness to express an opinion in an online setting, and that students were more honest in the online format as compared to the face-to-face format (therefore, less apprehension online than in person) (Ho & McLeod, 2008). By sampling online, it will help us avoid a gender bias.

Review of Literature

McCroskey compares the correlation between Communication Apprehension (CA) and Social Phobia by using the PRCA model to measure CA and the results that it has on social phobia. The hypotheses that we are interested in are hypothesis H2b and H2c, which prove that 47% percent of people suffer from Communication Apprehension due to feeling lack of control (McCroskey, 2008). Control over messages sent via electronic mediums may help those with
communication apprehension; therefore further driving the motivation for this study. Social media and computer-mediated communication could help people who fear communication because it allows for produced more controlled messages and an individual’s control over their messages. The results of this study also found that people have higher social communication apprehension levels with strangers than they do with acquaintances, i.e. with professors versus close friends. We are interested in studying whether computer mediated communication plays a part in easing an individual’s communication apprehension or if a person’s CA is predisposed.

Scott and Timmerman (2005) prove that communication apprehension is less when an individual is using a medium that they are comfortable with (Scott, 2005). Contrarily, in a computer literate university environment, meaning a technologically savvy college campus where individuals use Facetime to communicate with family members at home and use texting to communicate with their friends, there are individuals who suffer from communication apprehension. As time progresses, technology becomes more prominent in society and common in everyday use and CMC apprehension decreases in correlation. Bodie (2012) tested CMC anxiety against CMC familiarity. Using CMC could be therapeutic for those who have a fear of communicating with others face-to-face. Stress is commonly associated with communication apprehension and therefore interrelated (Bodie, 2012). This reveals that computer-mediated communication can be independent of unrelated stress and can act as a preventative measure towards communication apprehension.

Brown (2004) also examines the relationship between communication apprehensions and familiarity of CMC. We are aware that one’s proficiency using computers has an effect on computer-mediated communication anxiety, surveying college students who generally have high proficiency with social media and most methods of computer mediated communication (Brown,
2004). We want to know whether they choose CMC over F2F due to familiarity of the medium or because they finally have an outlet for communication that gives them less anxiety than F2F communication. This study proves that not only does CMC familiarity have a positive effect on CMC anxiety (Brown, 2004), but also CMC attitudes will have a positive effect on CMC use. This tells us that people with predisposed good attitudes towards computer mediated communication will be more likely to use CMC as an outlet to express themselves if they have high levels of communication anxiety. Contributing factors to CMC anxiety include computer anxiety, oral communication apprehension, and CMC familiarity (Brown, 2004).

McCroskey (2001) observed that communication apprehension did not yield a significance involving one’s attitudes towards computer mediated communication (McCroskey, 2001) meaning that individuals with high levels of communication apprehension are not generally opposed to communicating via computer-mediated communication. Openness while using CMC was predicted by communication apprehension (McCroskey, 2001). CA is relative and CMC could create lower levels of stress for CA sufferers. The findings of this study support the relationship of CA and II to perceived CMC usage (McCroskey, 2001).

Although communication apprehension was not directly studied in Flaherty et al. (1998), the measures taken for computer-mediated communication apprehension (CMCA) were used as a significant indicator for CMC and was seemingly more informative to the researchers studying topics similar to our study (Flaherty et al., 1998). The research from Claytona et al. (2013) indicates that anxiousness significantly predicted emotional connectedness to Facebook, thereby suggesting that Facebook use is an outlet for those who feel communication apprehension in face-to-face situations. The implications of this further infers that as face-to-face apprehension
becomes greater, the use of social media outlets to communicate, such as Facebook, also become greater (Claytona et al., 2013).

It has also been found that a positive relationship with one’s parents contributes to a positive sense of self, which is particularly interesting in regards to the formation of communication apprehension in young adults. Davis (2013) concludes that even with smart phones, social network sites, and digital friendships, parents and face-to-face friendships play a vital part for adolescence in discovering their self worth and identity. This significantly supports our study in regards to understanding background context for the relationships students have with their computer mediated activity and the severity of their communication apprehension (Davis, 2013). Youth using the Internet and other electronically mediated means for social support lack the same relief as those who seek face-to-face comfort. This calls into question the direction of our growing mental health in regards to suffering and support as social media grows in popularity. The ideas of having high communication apprehension and using computer-mediated communication (CMC) in place of face-to-face communication thusly tie directly into our study (Lewnadowski et. all, 2011).

The importance of face-to-face communication is irrefutable. The benefits of the relationships that are fostered offline prove that as we continue to increase out technology use we must also find a way to keep face-to-face friendships alive (McEwan & David, 2013). McEwan and David (2013) provide a basis for reasoning that online relationships, which lead to face-to-face communication, can be just as impactful as those that begin as face-to-face interaction (McEwan & David, 20213). Moreover, the discoveries made in our studies about the Chapman undergraduate population regarding their face to face communication apprehension and
Computer mediated communication will be vital to improving and or at minimum maintaining the quality of friendships and community throughout the school.

Cortese and Seo (2012) found that increased levels of perceived presence, coupled with higher levels of CA led to lower engagement in F2F groups. Those with higher CA tended to engage more in CMC discussions where there was less sense of social presence. Patterson and Gojdycz’s (2000) study mirrors the questions presented in this study, but its age brings the findings into question. While the researchers did not link CMC use to CA, they found a very strong link to CMC use and computer-mediated apprehension. However, our test pool is primarily technologically adept for Millennials with whom technological apprehension is no longer a factor. Thatcher and La Cour (2003) studied the ways in which personality traits determine usage of CMC versus F2F using the Myers Briggs type indicator. Significant differences were found in the level of satisfaction with the outcome in those with extroverted personality traits. Those with introverted traits were more satisfied in the CMC groups where they could contribute more and worry less about their insecurities. Extroverted subjects were able to dominate discussions in the F2F groups.

Wright (2000) explores the use of online support groups for those going through traumatic life events. The findings yield that those with a higher indicated CA are more likely to engage in online support groups, are more comfortable sharing and tend to spend more hours in online groups than offline ones. Zhang, Tang, and Leung (2011) explore how CA affects college students’ use of Facebook CA significantly negatively correlated with Face Book use. Additionally, the researchers found that those with lower CA used FB to seek others with low CA, but those that had a higher level of CA had significantly lower satisfaction level, coupled with lower usage and network extension and maintenance.
**Rationale**

Finding out why one person may feel satisfaction or dissatisfaction while they communicate with others can help us better understand why some prefer direct verbal communication to computer-mediated communication. A previous study wanted to understand the relationship among biological sex, self-esteem, and communication apprehension using identity theory and social interactionism (Pearson, Child, DeGreeff, Semlak, & Burnett, 2011). Influences like biological sex and self-esteem, and most importantly communication apprehension can have an effect on one’s unwillingness to communicate. There are two dimensions to one’s unwillingness to communicate: the perceived rewards and the perceived consequences of approaching or avoiding communication encounters (Pearson et al., 2011). It has been shown that women find communication more rewarding and are more likely to approach it than avoid it. Self-esteem is a big factor when it comes to communication apprehension; it can be viewed as a reward and strengthen with positive communication experiences. The people who possess high self-esteem actually find communication rewarding where as people with low self-esteem are more pessimistic about communication and find it less rewarding (Pearson et al., 2011). Individuals displaying a higher level of self-esteem appear to be much more sociable, easier to talk to, and seem to actually prefer the activity of communication to someone who may feel low self-esteem (Pearson et al., 2011). If one has a negative communication experience it may result in lower levels of self-esteem and doubt about their own ability to be an affective communicator (Pearson et al., 2011). Apprehension to even communicate seems linked to self-esteem so when it comes to communication, self-esteem could actually affect the type of communication we prefer, not just our drive to communicate. Since those displaying low self-esteem view communications as less rewarding, it is important to find a
way to engage them and computer-mediated communication seems to do that. Communication apprehension may affect an individual’s self-identity and those with high communication apprehension have been reported as having high levels of social phobia (Pearson et al., 2011).

High face-to-face communication apprehension could lead to more electronic use of computer-mediated communication and this may be true in situations when young adults, try to maintain communication with friends back home. While in the first year of college, students may try to maintain communication with friends from back home. During this time of transition everything is so new, including the people students are surrounded with- from their roommates to friends to classmates. Having new people in their lives for the first year could make it difficult for some students to connect and create quality friendships. These young adults may attempt to maintain connections with long distance friends from their hometown that have, in the past, provided support and been of a higher quality. A study was conducted to explore the idea that computer-mediated communication with these hometown friends could actually compensate for the lack of high quality friendships formed on campus during a student’s first semester (Ranney & Troop-Gordon, 2012). This study found that students who have communication apprehension and are slower to make friends, but who used computer-mediated communication with their longtime encouraging friends, actually experienced a more positive adjustment result as they learned to cope and deal with their stressful transition into college life (Ranney & Troop-Gordon, 2012). They also found that this type of communication helped those students suffering from depression and/or anxiety, if there was any, caused by their new lower quality friends at college. However, the success of any computer-mediated communication with old friends was based on the quality of that older friendship and whether it was supportive or full of conflict. Overall not only is computer-mediated communication assisting with social and psychological adjustment in
those students not especially full of self-esteem, but it seems to also help first semester college students experiencing stressful situations.

CMC can be defined as a synchronous or asynchronous electronic mail and computer conferencing, by which senders encode in text messages that are relayed from senders’ computer to receivers (Flaherty, Pearce, and Rubin, 1998). CMC actually lacks some obvious nonverbal elements that face-to-face communication has like facial expressions or the tone of one’s voice. A previous study examined if CMC channels could be used as functional alternatives for face-to-face communication and suggested that the sample preferred the FTF context to fulfill interpersonal communication needs, therefore, concluding that CMC communication channels are not functional alternatives for FTF channels for most interpersonal needs (Flaherty, Pearce, and Rubin). Walther (2010) looked into the understanding of vocal communication versus computer-mediated communication and how they affect interpersonal impressions. He found that making use of CMC mediums, where there is little face-to-face and vocal communication, allows a person to manage and adapt the impression they wish to project in any given situation (Walther, 2010). CMC takes out the face-to-face and verbal part of communication where others can pick up on our impressions really quickly, thus providing a barrier where one can essentially hide his insecurities much easier. For an individual with low self-esteem, if given an alternative like this, computer-mediated communication may actually prove rewarding and change their attitude and willingness to communicate.

Communication apprehension (CA) can be defined as a person’s level of anxiety associated with real or anticipated interaction with others and can be influence behaviors and motivations by individuals (Flaherty, Pearce, and Rubin, 1998). Today we have so many ways to communicate and CMC is constantly advancing and has become one of the fastest growing new
communication technologies (Flaherty, Pearce, and Rubin, 1998). CMC is very popular with today’s younger generation and is shaping a new way of communicating with others causing possible CA with FTF because the lack of the actual face time we have with others.

As technology has advanced the interpersonal aspect of communication has declined; we are not forced to talk on the phone to one another let alone be engaged face-to-face, if it is not convenient. In a study done by Joinson (2004), explores self-esteem to understand motivations for media preferences. He states that those with high self-esteem will tend to take the risk to self-enhance, while low self-esteem people won’t take a risk for public humiliation and will self-protect (Joinson, 2004). However, for individuals with low self-esteem, face-to-face or phone conversations are seldom preferred because using these forms of communication gives them less control over self-presentation, whereas email or any other CMC offers social confidence, by increasing control over self-presentation and non-verbal cues (Joinson, 2004). Being shy is no longer a difficult characteristic to cope with when communicating. In today’s world, being able to email or text someone as a main form of communication isn’t uncommon and is not perceived negatively.

Methods

Participants

Students in the COM100, an Introduction to Communications Studies at Chapman University were asked to participate in the study in exchange for class credit. The survey was distributed to introductory level students through a university sponsored proctor and was dispersed to undergraduate students at Chapman University through the use of social media (including both Facebook and Twitter.) The survey was posted on the Facebook profiles of the researchers and other students for distribution to the general public. The survey consisted of 109
participants with an average age of 23. The respondents were predominately women (76.7%).

The sample was purposive, and our research introduces questions to participants regarding media usage and communication apprehension in a university setting. The survey was administered via the online host Survey Monkey (surveymonkey.com) and consisted of 82 questions.

**Measures**

The survey commences with demographic information that is used to evaluate associations between the participants and their media tendencies in correlation with their level of communication apprehension. The survey remained anonymous and was available to all eligible undergraduate students and other users of social media until the noted deadline for collection—thus representing a random sample. The survey makes use of McCroskey’s Personal Report of Communication Apprehension (PRCA) scale (McCroskey, 2008) followed by media usage questions evaluated on a 5-point Likert scale.

The subsequent questions were based upon McCroskey’s Personal Report of Communication Apprehension (PRCA) scale created in 1976, which assesses communication style and confidence in different face-to-face communication settings. The questions evaluate the user's ability and desire to engage with various types of media and are measured on a Likert scale. These computer-mediated and electronic media include Facebook, email, texting, and phone conversations. The researchers assessed the communication apprehension (CA) of each survey user and compare that to the individuals preferred communication method(s).

**Procedures**

The survey was distributed via two methods. The university’s subject pool was utilized to gather subjects within the communication studies department to participate in the study. They
took the survey either on the own time on their own computers or in various lower division (100-200 level) communication studies classes on their own computer. The research team posted the survey link on their individual Facebook pages to recruit study participants and shared the survey link via Twitter. One study participant utilized LinkedIn to recruit study participants. All surveys were completed on SurveyMonkey.com.

**Analysis**

Answers to open ended questions were analyzed using consensual qualitative research (CQR; Hill, Thompson & Nutt Williams, 1997). Each member of the research team first independently analyzed all of the answers that participants using spreadsheet computer software. The researchers corrected any misspelled words and coded longer answers to key themes. Most study participants provided one-word answers or short answers using key words to describe their answer. This promoted inter-rater reliability and made coding answers efficient, as the researchers were able to group answers and observe similar themes among answer sets. After coding the answers, the researched met to discuss and reach a consensus on the data. Answers that were related to ease of use were coded as “convenience”, answers relating to saving time or the speed of delivering a message were coded as “quickness” ad answers that related to controlling messages were coded as “message control”. Other codes that were used include “ease of use”, “awkwardness”, “break-up”, “and bad news.” For example, the first open-ended question on the survey is: “Explain why you choose to communicate with texting, email, or social media.” A participant answered: It's easy, convenient and I have a longer amount of time to formulate responses. We coded this answer as “ease of use”, “convenience” and “message control.”
Results

Three questions guided this research: (a) Do people who use computer-mediated communication frequently have higher levels of communication apprehension? (b) Is there a negative relationship between computer mediated communication usage and communication apprehension? And (c) Are individuals with high levels of communication apprehension more likely to use computer mediated communication than face-to-face communication? These research questions explore the possibility that communication apprehension is related to the frequency of CMC use. The results showed that generally, communication apprehension does not relate to CMC usage. Although these results were disappointing to the research team, the qualitative data proved to be insightful and explained some of the different reasons why individuals use CMC or face-to-face communication. The answers were also supportive in presenting what circumstances dictate what communication medium individuals prefer to use.

Previous research has indicated that social media is mainly used as a means of self-expression and convenience, however this study concludes that message control is a primary motivating factor for social media and CMC usage. The surveyed students indicated that they prefer to communicate with their professors via email, due to its convenience and quickness, but also because they could better formulate their questions and messages to their professors. One answer to the question “Explain why you choose to communicate with texting, email, or social media?” was “control over the message”. Another response to the same question was “Ability to multi-task and have ample time to create appropriate responses”. Study participants indicated that they like using CMC or social media because they could respond on their time and carefully plan their responses before sending messages. Another main theme that was discovered is that participants prefer to use CMC to communicate with others that are far distances away. For
example, one participant wrote, “I can talk to people in other states and/or countries, cheaper”. Participants indicated that they use CMC to avoid the awkwardness associated with F2F communication. One response was simply, “easier, less awkward.” When asked why they choose CMC, participants indicated that they prefer having messages documented for future reference. Among the most common responses individuals gave to describe why they use CMC are convenience, quickness and ease of use. Additionally, multi-tasking behavior was shown to be a predictor of text messaging among survey participants. Two examples of this are “When I am doing something else I like to text” and “Life can be hectic, texting makes multi-tasking easy”.

When asked why they choose to communicate with others face-to-face, participants indicated that they valued reading non-verbal cues. One participant answered, “Able to ascertain body language, build rapport” and another answered, “it’s more personal and you can hear their tone, read their body language, and connect with them better”. Another recurring theme was that participants felt that creating a feeling of intimacy is important. A participants wrote, “It's more personal and creates a strong connection.” Additional themes include the desire to avoid misunderstandings and to share important information. The participants were also asked to describe both a situation in which they thought it would be better to communicate with someone face to face and a situation in which they believed it would be better to communicate with someone using social media, email or texting. Research participants overwhelmingly indicated that romantic relationship break-ups should be done face to face. Interestingly, there is a common misconception that break-ups are frequently being conducted via social media and CMC but the research indicates that young adults do not deem break-up texts acceptable. Relaying bad or important news is also among the top reasons that participants felt F2F
communication is more appropriate that CMC. Furthermore, participants indicated that it is better to communicate with others via CMC when there is no time to have a face-to-face conversation, to schedule something, to quickly send and receive information and to contact large groups at once such as a Facebook post.

When analyzing the quantitative data, little was revealed. Under the assumption that a score of 76 or above on McCroskey’s PRCA scale would be the indication for an individual with high communication apprehension, our data, due to a fatal sampling flaw, revealed only two individuals who met this criteria. Therefore we broke our survey data up into group communication apprehension (CA), meeting CA, dyadic CA, and public CA. We then ran correlations between the newly formed CA groups and the remaining survey questions.

We found a negative correlation between group CA and meeting CA, which suggests that undergraduate university students see group settings as more comfortable than meeting spaces. There was a positive relationship between all other criteria created within the survey to analyze face-to-face CA suggesting that in all other situation the survey participants experienced low or very low CA. Moreover, the analysis of our other data in response to our CA groups proved statistically reliable once a Chronbach’s Alpha test was run with a result of 0.813. The most interesting of these results were similar to those of the CA group analysis and showed a negative correlation between meeting CA and “I am comfortable meeting new people face to face.” With a Pearson result of -0.231 and a two tailed test result of 0.05, the data would suggest that the participants who did not feel comfortable with face to face interactions in meeting situations.

In opposition, there was a negative correlation between public CA and “I prefer texting to get in touch with my friends,” seen through the Pearson score of 0.189 and the two tailed score of .048. Interestingly, this would suggest that participants who are comfortable speaking in
public would rather text their friends to get in contact. This seemed incorrect when approached through a lens reflective of our research questions, but when compared to the qualitative answers became clear; those participants who felt low communication apprehension in face to face (and public) situation felt low communication apprehension regarding all mediums, and specified that their preferred use of communication was based mostly on convenience. Although the quantitative data did not provide much insight alone, when paired with the qualitative responses it is clear to see that the survey questions were an accurate indicator of CA and CMC usage.

Moreover, the analysis of our other data in response to our CA groups proved statistically reliable once a Chronbach’s Alpha test was run with a result of 0.813. The most interesting of these results were similar to those of the CA group analysis and showed a negative correlation between meeting CA and “I am comfortable meeting new people face to face.” With a Pearson result of -0.231 and a two tailed test result of 0.05, the data would suggest that the participants who did not feel comfortable with face to face interactions in meeting situations. In opposition, there was a negative correlation between public CA and “I prefer texting to get in touch with my friends,” seen through the Pearson score of .189 and the two tailed score of 0.048.

**Discussion**

Previous research has indicated that social media is mainly used as a means of self-expression and convenience, however this study concludes that message control is a primary motivating factor for social media and CMC usage. One answer to the question “Explain why you choose to communicate with texting, email, or social media” was “control over the message”. Another response to the same question was “Ability to multi-task and have ample time to create appropriate responses”. Another main theme that was discovered is that participants prefer to use CMC to communicate with others that are far distances away. For
example, one participant wrote, “I can talk to people in other states and/or countries, cheaper”. Participants indicated that they use CMC to avoid the awkwardness associated with F2F communication. One response was simply, “Easier, less awkward.” When asked why they choose CMC, participants indicated that they prefer having messages documented for future reference. As stated previously the most common responses individuals gave to describe why they use CMC are convenience, quickness and ease of use. Additionally, multi-tasking behavior was shown to be a predictor of text messaging among survey participants. Two examples of this are “When I am doing something else I like to text” and “Life can be hectic, texting makes multi-tasking easy”.

When asked why they choose to communicate with others face-to-face, participants indicated that they valued reading non-verbal cues. One participant answered, “Able to ascertain body language, build rapport” and another answered, “it’s more personal and you can hear their tone, read their body language, and connect with them better”. Another recurring theme was that participants felt that creating a feeling of intimacy is important. A participants wrote, “It's more personal and creates a strong connection”. Additional themes include the desire to avoid misunderstandings and to share important information. The participants were also asked to describe both a situation in which they thought it would be better to communicate with someone face to face and a situation in which they believed it would be better to communicate with someone using social media, email or texting. Research participants overwhelmingly indicated that romantic relationship break-ups should be done face to face. Interestingly, there is a common misconception that break-ups are frequently being conducted via social media and CMC but the research indicates that young adults do not deem break-up texts acceptable. Relaying bad or important news is also among the top reasons that participants felt F2F
communication is more appropriate than CMC. Furthermore, participants indicated that it is better to communicate with others via CMC when there is no time to have a face-to-face conversation, to schedule something, to quickly send and receive information and to contact large groups at once such as a Facebook post.

The quantitative data from this study was less conclusive than our qualitative data, but suggested that participants who are comfortable speaking in public would rather text their friends to get in contact. This seemed incorrect when approached through a lens reflective of our research questions, but when compared to the qualitative answers became clear; those participants who felt low communication apprehension in face to face (and public) situation felt low communication apprehension regarding all mediums, and specified that their preferred use of communication was based mostly on convenience. Although the quantitative data did not provide much insight alone, when paired with the qualitative responses it is clear to see that the survey questions were an accurate indicator of CA and CMC usage.

The limitation in this study stems from our use of the communication studies subject pool. Since the majority of study participants were communication studies majors, the number of study participants with high communication apprehension was small. Most students within the communication studies major have proficient or advanced communication skills and test low in communication apprehension. These students self-select to engage with a program of study that involves a lot of communication in dyadic and group settings and are trained to have less than average levels of communication apprehension.

**Conclusion**

Although our study was not without limitations, we did have findings that supported our hypotheses. Unexpectedly, the strongest correlation in our results showed that people we
surveyed felt confident communicating regardless of the medium; a finding we think could have been affected by our sample bias.

Future research would benefit from a sample of Millennials who are not being trained in communication studies, avoiding a bias that was present in our results. A suggestion for further research would be to test another variable for its correlation to CA besides CMC usage. Technology presents an ever-changing climate for communication studies and it is imperative for research to also embrace the new frontier of computer-mediated communication. Our research takes a step in that direction.
References


