

HOW COMPUTER-MEDIATED COMMUNICATION
CAN CONFUSE EMOTIONS
IN DIVERSE TEAMS

by

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ABSTRACT

This study focused on how various forms of CMC (Computer-mediated communication) were perceived and analyzed in a team setting by different genders and members of different generational groups. Specifically, the aspects of flaming, emoticons, and conflict resolution were examined in detail. Hypotheses concerning flaming were mixed as while all participants disliked flaming, baby boomer-age respondents were more tolerant of it. However, all hypotheses concerning emoticon usage were not supported. Neither gender specifically supported emoticon usage. Also, younger generations were not as supportive of emoticon usage in a team setting as expected. Finally, mixed results were found for hypotheses concerning conflict resolution. While male respondents were more comfortable with conflict over CMC, there was no significantly higher level of comfort concerning conflict and CMC for younger generations. Implications and possible avenues for future research are also discussed.

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INTRODUCTION

As teams become increasingly virtual and geographically scattered, technology is needed to help group members collaborate to accomplish goals. Computer-Mediated Communication (CMC) is increasingly utilized in the workplace. There is an increasing number of platforms with which CMC can occur. Text-based mediums, such as email and instant messaging, along with newer voice and video-enabled options exist today. Faster connections and new technologies today can enable voice and video streams to occur online, helping bridge the gap between traditional face-to-face communication and communicating through a computer (Abbasi and Chen, 2008). However, the workplace today still widely uses email, chat logs, and other text-based forms of CMC that are considered to be “weaker” channels of communication (Baralou and McInnes, 2013). Because of this, text-based CMC will be the focus of this paper. A growing amount of literature has been written about ways to build teams and more easily convey emotions across text-based CMC mediums, and is a continuing area of study as CMC technology continues to grow and develop (Katz, 2012).

Another recent trend with teams in the workplace has to do with how teams are now more diverse than ever. Over the past few decades, women have become increasingly prevalent at work, and sometimes communicate in a different style than men (Huajiao and Qing, 2012). Furthermore, the generational composition of the workforce is undergoing a major transition. The baby boomer generation, which has held the majority of high-level positions, is beginning to approach the age in which they retire en masse. Taking their place most recently is the millennial generation, which has a wildly different view of communication and technology (Myers and Sadaghiani, 2010).

These differing styles of communication and expectations of technology have caused, at times, potential strife and conflict among teams. The unique challenges of text-based CMC mediums, coupled with an average workplace team that is more diverse and has wildly different styles of communication than ever before, make these issues more difficult to overcome. Different team members can perceive common traits of CMC differently. Emoticons and flaming are traits that are unique to text-based CMC, and have become a more common area of study in the past few years (O'Sullivan and Flanigan, 2003, Derk et al., 2008). In addition, managing conflict and disagreements through text-based CMC create a new set of issues. These are made all the more difficult to tackle due to the aforementioned diverse nature of virtual teams.

While other scholars have looked into various ways that different genders and generations react to several aspects of CMC, there are still gaps that need to be filled in. For example, studies of how different genders perceive emoticons have not been published, and neither have papers concerning how different generations prefer to resolve conflict over CMC. Similarly, papers that compare conflict resolution between different genders and generations are largely concerned with face-to-face interaction and not CMC. Because CMC is such a relatively new phenomenon, it simply does not have the body of work that more established fields of study have. This, combined with the ever-increasing role of CMC in the workplace, results in a need for further research to be conducted. Learning the best ways in which a team can interact over CMC would benefit nearly everybody within a business. Team members would more easily achieve tasks. Managers and decision-makers could spend less time untangling possible drama and also create a team that would be more likely to succeed accomplishing a task at hand.

This paper will discuss how flaming, emoticons, and conflict resolution are perceived differently by members of diverse teams. Gender and generation play a major role in how CMC usage is perceived, and merits further discussion. By analyzing the available works and further investigating how different genders and generation perceive aspects of CMC, this paper will more adequately be able to explain the best ways in which to interact with team members over CMC. After reviewing the available literature on the subject, a survey is conducted among college-age students (the millennial generation) and baby boomers over how they perceive emotions in a series of sample scenarios. By analyzing and discussing how diverse teams can better handle various aspects of CMC, they can more effectively develop as a functioning and high-performing group, despite the obstacles that virtual collaboration may provide.

LITERATURE REVIEW

This section examines, in order, what literature has already been written concerning flaming, emoticons, and conflict resolution over computer-mediated communication. Because CMC is still a relatively new phenomenon in the business world, the body of knowledge on all the aforementioned subjects is still new and continually changing.

Flaming

Flaming is a phenomenon unique to computer-mediated communication. Equivalent to being yelled at or otherwise verbally assaulted in face-to-face conflict, flaming is more formally defined as “hostile and aggressive interactions via text-based computer mediated communication” (O’Sullivan and Flanigan, 2003, p. 67). Flaming can be expressed in a variety of ways, ranging from profanity, offensive or derogatory

remarks, to typing in all-caps to simulate shouting (Johnson et al., 2009). Because CMC, an inherently weaker communication medium, oftentimes results in “reduced social constraint”, flaming is much more likely to occur (O’Sullivan and Flanigan, 2003). When communication breaks down to the point that flaming occurs, all forms of negotiation are very likely to cease being effective. Flaming is an increasingly relevant topic, in part because of the increased frequency of computer-mediated negotiations and group work in the workplace (Johnson et al., 2009).

Johnson, Cooper, and Chin (2008) have identified and categorized what they believe are two “types” of flaming. The first type, opponent-directed flaming, arises because of the perception that one participant in the conversation has about the other. The idea that another member of a group is somehow “unfair” or uncooperative can potentially lead to the other party flaming the opposite contact. These types of personal attacks can inhibit the effectiveness of a group, limiting group unity, cohesion, and willingness to agree on issues at hand. In an experiment done in 2008 by Johnson, Cooper, and Chin, it was found that opponent-directed flaming does indeed decrease the likelihood that a group consensus can be reached. The shunning of “social norms” (Johnson et al., 2008) that flaming causes prevents the group from being able to easily trust each other to accomplish the task at hand.

The second type of flaming identified is context-directed flaming. This type of flaming involves one side of a conversation becoming frustrated or angry not at another person involved in the discussion, but instead at the medium in which the conversation is being held in. Frustration tends to rise when the medium is not able to meet the needs of the user (Johnson et al., 2008). The channel with which teams utilize computer-mediated

communication can greatly impact how a team is able to perform and function. Email, for instance, is a channel that is much more limited compared to traditional face-to-face conversation. The message is asynchronous, meaning that questions may not be answered as quickly as they could be otherwise. In addition, verbal, pictorial, and nonverbal expressions (such as expression or tone of voice) are not conveyed as easily. (Johnson et al., 2009). This could potentially inhibit group effectiveness and frustrate a team member who is not accustomed to dealing with these hurdles.

One other note of interest found during the Johnson, Cooper, and Chin (2008) studies was that when either opponent-directed or context-directed flaming occurred, the party that exhibits the flaming behavior is much more likely to come off worse than the person who did not participate in flaming. Contrary to the idea that flaming could perhaps show dominance, it turns out that the opposite is true. Flaming contributes negatively to strategic negotiations. In addition to harming the dynamics of a computer-mediated group, it can also personally inhibit the flaming group member from coming off as an effective team member (Johnson et al., 2008).

Flaming Across Genders and Generations

When diverse teams need to utilize CMC to accomplish workplace goals, perceptions about flaming between both genders and by generation have both various differences and similarities. The one thing that all groups have in common is that, by and large, flaming is something that should be avoided when at all possible. Groups as a whole enjoy being able to cooperate and communicate openly and safely with members, even when conflict does occur. Flaming occurs when these societal expectations and norms fall apart (Johnson et al., 2008). Though these norms do slightly vary between

genders and by generation, basic desire to work together and coexist among peers has remained constant for much of human existence.

Numerous studies have theorized and expanded in detail on how men and women communicate differently. As a whole, women tend to adopt more emotion and personal anecdotes into their communication. Even through computer-mediated communication, scholars have found that women are more likely to ask questions, insert a more personal orientation, and be more emotive in their messages (Jaffe and Lee, 1999, Savacki et al., 2000). In contrast, men are typically more likely to exhibit stoic behavior, minimal emotion, and are more prone to adopting aggressive language and conversation when needed (Spottswood et al., 2013).

In particular, the tendency for men to be more aggressive is the most obvious link to flaming behavior. In a Savicki and Kelley (2000) study concerning gendered communication in CMC mediums, male-only groups were more likely to ignore ways to adapt to the CMC medium, and instead only focused on the task at the end. The environment created a less rich channel for understanding, which led to higher dissatisfaction with CMC and the addition of “mild flaming”. In contrast, women learned to overcome the challenges posed by CMC and avoided flaming altogether (Savicki and Kelley, 2000). The flaming that was demonstrated by the men was by and large opponent-directed, particularly because the group did not take the time to learn how to utilize a CMC medium properly. Conflict more easily formed because of how the group members could not properly communicate and connect. Gender can impact flaming considerably over computer-mediated communication, based on traditional styles of gender communication.

When it comes to generational viewpoints over flaming, however, there is not an obvious schism over how baby boomers and millennial group members perceive it. As discussed earlier, human culture promotes finding ways to work together and to avoid negative conflict if possible. Partially because of this, there is no real research on how different generations perceive flaming over CMC mediums.

A possible source of flaming among generations, however, is context-directed flaming. Particularly among older generations, such as the baby boomers, frustration may occur in utilizing newer technologies with which they are not familiar. The millennial generation, on the other hand, has grown up with a rapid influx of new technologies that they are much more familiar with (Beekman, 2011). Another way that generations could potentially engage in flaming behavior is if they do not like the way a message is being conveyed over the medium. In a study by Kallinen and Ravaja, older and younger subjects were asked to evaluate, measure preference, and discuss how they preferred to receive messages through CMC. Older generations preferred a slower pace of information, while younger subjects flocked towards the opposite (Kallinen and Ravaja, 2005). If a generational group perceives that the medium is preventing them from fully understanding a situation, context-directed flaming might be possible.

Similarly, if another member of a group is utilizing CMC in a way that another member of a different generation is not familiar with, opponent-directed flaming is possible. Different generations prefer different styles of communication. Older generations as a whole prefer face-to-face communication or phone calls in order to accomplish items at work. On the other hand, the millennial generation is much more prone to utilizing email and text messages to communicate. Frustration may occur when

having to communicate in a style that an individual does not like, which could contribute to negative perceptions of the other member of the conversation (Goudreau, 2013). When left unchecked, and without ways for groups to monitor and potentially remedy this issue, flaming could likely occur unless discussed.

The one thing that both genders and multiple generations have in common concerning flaming is that it should be avoided whenever possible. Although some genders may prefer report over rapport, and different generations view CMC mediums in different ways, flaming is always viewed as a severe destruction of group dynamics.

Emoticons

Emoticons are another unique component of CMC. First utilized in the 1980s, an emoticon has been defined as “an ASCII glyph used to indicate an emotional state in e-mail or news” (Wolf, 2000, p. 828). Emoticons allowed the sender of a message to simulate a facial expression as closely as possible. In what has historically been a rather “lean” medium of communication, emoticons provide a much more accurate way to judge emotion and mood from the sender (Lo, 2008). Text-based CMC in particular inhibits numerous channels of communication from being properly conveyed. One such channel, which is crucial for discerning items such as mood and agreement, are facial expressions. Over an email conversation, for instance, there is no way for members of a team to entirely determine the facial reaction of another team member. Non-verbal cues, often unique to face-to-face interaction, are much more difficult to convey through a CMC medium. This is a major blockade to the communication process, and a difficult obstacle to overcome for virtual teams or those utilizing CMC (Derk et al., 2008). In

addition, the inability to read and interpret non-verbal cues can cause entire emotions to be hidden and undetectable in a message (Lo, 2008).

To help combat this inability to perceive emotion and tone through CMC, many users of text-based CMC mediums have come to rely on emoticons to properly convey feelings. Since then, emoticons, along with the more advanced and graphic smileys have become commonly used by everyday users of chat rooms and other text-based CMC mediums. Ranging from the simple =-) to the more complex☺, these figures have helped convey more social information across CMC than previously possible (Ganster et al., 2012). This ability to simulate nonverbal communication has led some scholars such as Lo to proclaim emoticons as “quasi-nonverbal cues”.

Numerous studies have investigated what types of CMC-mediated messages are best conveyed by emoticons, as well as how effective they truly are in expressing a correct emotion in group settings. Others have analyzed the social motives for using emoticons. When participants in a 2008 study by Derk, Bos, and Grumbkow were asked to observe and respond to short CMC chat logs, the aspects of communication that were “delivered” the best by emoticon usage were “the expression of emotion, for strengthening the verbal part of a message, and for expressing humor” (p. 101), much like the role facial expression plays in traditional face-to-face communication. This supports the earlier idea from Lo (2008) that emoticons in CMC are best used as quasi-nonverbal cues. It was also found in the same study that people who are more familiar with each other are more likely to utilize emoticons. For teams utilizing CMC, this provides another reason why group members need a way to bond and connect before exclusively relying

on CMC wherever possible. This is particularly important, once again, when a diverse team forms together in the workplace.

Emoticons Across Genders and Generations

There has been little written on the role that gender plays in utilizing emoticons in CMC. One of the few studies in the area was completed by Wolf in 2000. The traditional school of thought, as cited by Wolf, is that men, often regarded as the more emotionally-restrained of the two genders would be less likely to use emoticons when using a CMC medium. Women, on the other hand, would be much more likely to use them as a way to express emotion more ably. In same-gendered groups, this pattern holds true. Wolf discovered, however, that mixed-gender groups would be much more likely to have all members, especially males, begin to utilize emoticons more frequently. The study also revealed why each gender tended to use emoticons. Women used them to express general humor and camaraderie, while men utilized them to convey sarcasm or teasing. The study concluded that men viewed emoticons as ways to express emotions in a more typical and stoic style. Women, however, utilized them as a way to express “solidarity, support, assertion of positive feelings, and thanks” (Wolf, 2000, p. 832). In teams with both genders present, remembering exactly why a certain emoticon is present can help all members of the group more properly understand what emotion is trying to be conveyed, along with why the message is being sent in the first place.

There is also, sadly, little research on linking perceptions of emoticons by generation. However, there are ties in existing research that could link concepts together to create an overview of varying perceptions. The contrast between the baby boomers and millennials towards emoticons are quite different and warrant further exploration. As

discussed earlier, the baby boomer generation is, as a whole, much more accustomed to a more “standard” environment when it comes to communication- memos, face-to-face meetings, and phone calls are the common approach to reaching out to peers in the workplace (Robinson and Stubberud, 2012, Beekman, 2011). On the other hand, the millennial generation is comfortable with CMC mediums being used to more casually send messages back and forth. Because of the millennial worker’s comfort and familiarity with CMC, this means that they are also more familiar with using emoticons from a young age (Wolf, 2000). Conversely, the baby boomer generation can very easily see emoticon usage as unprofessional and not suited for work.

There is some common ground between both generations, however, when it comes to using emoticons at the workplace. While older generations such as the baby boomers are much more against the idea of using emoticons at work compared to millennials, a common shared value between both is that overusing emoticons is very possible. Wolf cites *The Hacker’s Dictionary* when noting in her article that “More than one [emoticon] per paragraph is a fairly sure sign that you’ve gone over the line.” (p. 828) Millennials do recognize when utilizing CMC and emoticons is not appropriate for the task at hand. However, they are still much more likely to utilize them than peers from older generational cohorts would (Robinson and Stubberud, 2012). Using emoticons has the potential to raise concerns of professionalism in a diverse group environment, as well as demonstrate different communication styles among group members.

Conflict Resolution

The final area of discussion for measuring emotions in CMC is not necessarily exclusive to CMC itself. Conflict resolution is a necessary aspect of any group project,

whether it is through a face-to-face medium or through technology. The subject of conflict resolution is incredibly broad. The topic can deal with any number or more specific subjects, including negotiation, arbitration, and establishing agreement (Kahai and Cooper, 1999). Because both CMC and conflict resolution as an academic pursuit are both relatively new phenomena, research in the field tends to revolve around investigating how “tried and true” conflict resolution techniques and models work through CMC. In fact, studies have shown that if conflict is “properly structured,” decision-making can improve. (Valacich and Schwenk, 1995).

The type of conflict that this paper focuses on occurs within a team. Internal debates and generating consensus within a team can be structured differently than the traditional concept of two parties negotiating a deal across the table. This issue is made more difficult to overcome in teams that utilize CMC for multiple reasons. As mentioned before, virtual teams are often geographically scattered and unable to express themselves as easily as a face-to-face team could (Chiravuri et al., 2011). In addition, an increasingly diverse workplace can further exacerbate conflict within a team (Valacich and Schwenk, 1995). Chiravuri, Nazareth, and Ramamurthy also assert that because virtual teams can often be coalitions of “experts” on a particular subject, differing opinions can make consensus and agreement much more difficult. To combat this, numerous models of conflict resolution have been suggested by various authors, which will also be explored and analyzed in further detail. This combination of CMC-related resolution models with specific issues in CMC-driven conflict will be the basis for helping narrow the focus of this section.

One technique for helping drive computer-mediated group decision-making through constructive conflict is devil's advocacy (DA), as investigated by Valacich and Schwenk. DA involves a plan being critiqued, questioned, and analyzed in order to determine how feasible it is. While DA does allow for a team to tackle a problem using constructive conflict, it can very easily backfire. If the tone of the questioning is too negative or overly critical, conflict can easily become destructive. This overly critical analysis was termed "carping" (Valacich and Schwenk, 1995). Results of their study suggested that teams utilizing CMC were more easily able to avoid overly negative tones when utilizing DA. Text prevented the tone of group members' questioning from becoming overly critical. On the other hand, carping could very likely lead to flaming, as discussed earlier. Results of the study showed that in a larger group of asynchronous users, comments can quickly become overly critical if left unchecked. Valacich and Schwenk suggested that a moderator should be present where possible in a CMC-based discussion, much like in a face-to-face group. The studies also showed that CMC groups were able to communicate and negotiate disputes better when the task at hand had low levels of ambiguity. The authors recommended that a more ambiguous task belongs in a richer medium (Valacich and Schwenk, 1995).

Another study that looked into techniques involving conflict resolution techniques was documented in an article written by Chiravuri, Nazareth, and Ramamurthy in 2011. Their paper examined how cognitive conflict and reaching consensus differed between traditional teams and teams utilizing CMC. They defined cognitive conflict as "conflicts that arise due to differences of opinion about a task" (Chiravuri et al., 2011, p. 313). To determine this, the study involved focusing on numerous methods of conflict resolution

and testing to see which worked the best for both type of team. A feeling of shared understanding amongst group members indicated that consensus was reached within the team.

The authors believed that cognitive conflict decreases when group members have a stronger team identity, which is much more easily achieved in a traditional team. Teams utilizing CMC instead focusing more on the task at hand and less at understanding the way other team members worked (Chiravuri et al., 2011). The study concluded that a method of conflict resolution that promoted team identity and shared understanding was able to lead a team to more success, regardless of the medium in which the team communicated. For teams that utilized CMC, however, it was recommended that team leaders focus on methods that in essence “force” team members to get to know each other further (Chiravuri et al., 2011).

Other articles discussed ways for teams utilizing CMC to positively express conflict. An article by Hastings and Payne details how dissent is observed and perceived over email. Balancing professional communication, while also effectively getting a desired message and tone across to other team members, is a difficult task over email. In the case of expressing dissent, team members can risk coming across as too condescending or rude. This, along with the possibility of miscommunicating over email, makes dissent more difficult in a CMC medium (Hastings and Payne, 2013).

Their paper analyzed various ways that scholars have traditionally suggested properly expressing dissent and translating it to a technological medium. Three core theories were analyzed that explained why dissent was a risky issue. The contingency theory described the importance of ensuring that the medium is properly suited towards

the message. For an extreme example, it would not be viewed as acceptable to fire somebody over an email. The second theory, the subjectivist approach, analyzed how the social environment influenced how different mediums are perceived. Some organizations have a culture that is more comfortable with expressing what they are feeling via CMC. Therefore, the employees within that company would be more likely to bring up a source of conflict over CMC. The final theory discussed, situational theory, looked into how technological constraints can prevent dissent from being properly expressed. Personal communication styles and the comfort with the medium at hand can contribute to comfort with conflict over CMC. (Hastings and Payne, 2013). For instance, a temporary chat room may be a constraint in which conflict is more difficult to properly engage in. This is similar in essence to the idea discussed earlier that text-based CMC is inherently a “weaker” channel than face-to-face communication.

The authors concluded with two guidelines for properly expressing dissent over email. First, a virtual team needs to know which discussions belong in writing and which ones deserve a more personal medium. Whenever possible, members utilizing CMC should use a richer method of communication to conduct a crucial conversation or serious dissent. Second, the authors urged for virtual team members to remain professional at all times. Expressing dissent through text can be taken negatively if not done well (Hastings and Payne, 2013). Similar to the carping versus devil’s advocacy balance discussed earlier, dissent can be taken as a personal attack or even flaming if not handled professionally. In order for a team to grow and effectively perform together, this breach of trust cannot be allowed to emerge.

A final aspect of conflict resolution that has been addressed in research involves agreement and acceptance of a consensus reached, which Kahai and Cooper investigated. Their study focused on how quickly CMC groups were able to reach an agreement and how satisfactory that agreement was. Kahai and Cooper believed that in order for an agreement to truly be effective and positive for all involved, members of a virtual team needed to do more than simply accept the final decision. The authors saw a difference between fully agreeing to a decision and merely accepting it while in a virtual team setting (Kahai and Cooper, 1999). In short, a team that agrees has similar points of view and feels more positively about a solution, while a team that only accepts a solution may still have reservations about the conclusion (Kahai and Cooper, 1999).

The main problem with forming a proper consensus in a CMC- related team, according to the authors, was that group cohesion was harder to establish. Groups utilizing CMC were found to be more effective in the short term with creating a decision (Kahai and Cooper, 1999). This conclusion had also been mentioned by other researchers previously mentioned, such as Hastings and Payne. Virtual teams were able to be more effective because they spent less time socializing and more time focusing on the issue at hand. While a solution was able to be reached more quickly, group unity suffered. These findings were backed up in Kahai and Cooper's study. When comparing a traditional team and a team communicating over email, the team that used email reached a decision more quickly. However, the email team as a whole had more disagreement and disunity over the solution. The traditional team was more prone to agreement while the email team only accepted a solution. The reason behind a gap between acceptance and agreement in teams, according to Kahai and Cooper, was that teams that relied on CMC

were much less likely to communicate with each other and instead focus more on the task at hand. While effective in the short-term, a team that would be around for a longer time would need to begin building group unity to create an effective group. As mentioned earlier, this is much harder when CMC is involved. To further complicate this matter, Kahai and Cooper referenced the Social Information Processing Theory, which states that socioemotional (as opposed to task-oriented) messages are slowed down and inhibited in CMC. This is due in part because of lesser richness of the medium when compared to others, and also that asynchronous communication can prevent a discussion from truly “feeling” like a conversation (Kahai and Cooper, 1999). The article recommended for team leaders that were in a virtual team to ensure whenever possible that both task-oriented communication and socioemotional communication were both occurring. Greater senses of group unity can then help a team, even when constrained by CMC, move from acceptance to agreement (Kahai and Cooper, 1999).

Conflict Resolution Across Genders and Generations

In contrast to newer areas of study such as flaming and emoticons, conflict resolution has a significantly larger body of research established. Much has been written about both gender and generational differences in resolving conflict. Focusing exclusively on CMC-related conflict resolution differences, however, significantly shrinks the available pool of resources. Several articles noted that gender or age-related differences with resolving conflict are not significantly different than face-to-face conflict resolution techniques. In addition, many general traits and trends discussed earlier in this paper apply to conflict resolution as well.

Numerous studies have been conducted over the years detailing how both genders deal with negotiating and resolving conflict. The general consensus is that, as a whole, when working through differences women tend to utilize more emotion when expressing themselves. In comparison, men are more likely to rely on appeals of logic or persuasion (Byron, 2008). When utilizing CMC, women engaged in conflict try to find common ground between all parties involved more frequently than men do. Men instead tend to assert dominance at an earlier point in the conflict (Savicki and Kelley, 2000). Furthermore, men utilizing text-based CMC are less likely to express positive emotions over email. Messages from men therefore tend to come off as more neutral, though when misconstrued can be taken as hostile (Byron, 2008). While exceptions to the norm certainly exist, studies over the years have indicated the same general findings.

Similar results can be seen between traditional face-to-face communication and CMC, but there are other interesting caveats that CMC puts into the equation. As previously mentioned, teams that utilize CMC have a less rich medium from which to parse context and emotion. Because emotion and conflict are so frequently tied together, misunderstanding the former can easily cause the latter to become more likely to occur. What little emotion that can be picked up on is quickly assigned to a specific gender. Various studies, such as those highlighted by Savicki and Kelley along with Jaffe and Lee, have indicated that people reading an email conversation can likely determine the gender of each participant based on rhetoric. Men tended to use “strong assertions, self-promotion... an authoritative orientation and the use of humor and/ or sarcasm” while women were more likely to employ “attenuated assertions, apologies, questions, a personal orientation, and supportive statements” (Savicki and Kelley, 2000, p. 818).

Scholars have suggested that as a whole, women employ more of an “interdependent and cooperative” style of communication than men, even over CMC (Jaffe and Lee, 1999). These sorts of collective patterns, when extended from general conversations utilizing CMC to conflict resolution specifically, can indicate similar findings concerning how different genders engage in conflict. Because men tend to focus more on “independence and... hierarchical power” (Jaffe and Lee, 1999, p. 223) conflict and negotiation is more likely to become heated, even over a less tense environment such as CMC. In contrast, because women tend to look for mutual purpose within a conflict, their negotiations and conflicts are more likely to end on a positive note for all parties. Studies have shown that women, on average, were able to create a more amicable result following a conflict or negotiation when compared to men over CMC (Huajiao and Qing, 2012).

There is an additional aspect of conflict negotiation and gender that is affected by CMC. Historically, women have been viewed as less economically valuable than men (Huajiao and Qing, 2012). Concepts such as the “glass ceiling” have been written about in earnest in other publications, and this paper does not go into detail concerning the historical context of this belief. However, the increasing role of women in the workforce has resulted in this traditional point of view being challenged and questioned. Furthermore, traditional social norms and gender roles have caused different expectations to exist for each gender in regards to engaging in conflict in the workforce (Savicki and Kelley, 2000). Male team members, historically regarded as the more “dominant” of the two genders, are perceived to have more influence within a conflict or negotiation. In contrast, women have been subconsciously put into a secondary role in regards to resolving conflict (Jaffe and Lee, 1999). These cultural norms, combined with

communication styles for each gender as outlined above, have only recently begun to change.

Technology and CMC, however, have had a much more profound impact on these perceptions of gender during a period of conflict or negotiation. Using CMC to work with others has allowed women to more quickly move past the stereotypes listed above. In addition, men utilizing CMC have been able to adapt more traits utilized by their female counterparts. According to Savicki and Kelley, team members working together through CMC adapt social norms based on the structure of the group as a whole. Men are still more common employees in the workplace, and also more likely to have positions of power and leadership. This explains why, in what has traditionally been a male-dominated field, business and technology are still widely viewed to be more “masculine”. Putting both genders and different communication styles together in the same text-based virtual group creates a different result (Savicki and Kelley, 2000). A body of text, while oftentimes able to be “gendered” as discussed above, is not immediately identifiable as being written by a man or a woman. To some extent, the traditional views of gender and conflict mentioned earlier do not get in the way of the message being communicated. For some women, this has been seen as a sort of “liberation” to more freely and easily persuade others and manage conflict. In fact, it was noted in one study that in a CMC format utilizing pseudonyms, women were more likely to select a name masking their gender than men were (Jaffe and Lee, 1999). The chance to be treated more fairly and objectively is much easier by utilizing the equalizing power of CMC. Conversely, men utilizing CMC were more likely to “let their guard down”, so to speak, and work at finding agreements rather than promote themselves exclusively (Savicki and Kelley,

2000). Male participants may have found the neutralizing effect that CMC provided as a way to not have to overly dominate a conflict or negotiation.

When compared to traditional face-to-face negotiation, CMC conflict resolution was able to put both genders on more of an equal ground (Huajiao and Qing, 2012). Because text-based CMC is able to mask one's gender to a certain extent, traditional gender roles are much more easily hidden and suppressed. In terms of conflict resolution, women were able to be taken more seriously and assert themselves more while men were encouraged to cooperate rather than fight. CMC has significantly altered gender differences in conflict, ironically enough by making them more similar than ever.

In comparison, there has been little written about how different generations resolve conflict over CMC. However, based on traits of both the millennial and baby boomer generations, some general trends can be determined. The baby boomer generation is more accustomed to conflict being a sort of "necessary evil" within the workforce at times. While they as a whole enjoy working with peers and colleagues more than generations before them, they recognize the importance that conflict can play within the organization (Goudreau, 2013). The millennial generation, when compared to generations preceding them, has been characterized as much more casual (Myers and Sadaghiani, 2010) and accepting of others, even when diverse cultures are involved. They prefer honesty and open feedback to address problems before they escalate into larger conflict (Myers and Sadaghiani, 2010). However, millennials are not as comfortable with fragile conversations in person as previous generations have been. In comparison, baby boomers are much more likely to hold important conversations with team members in

person. Millennials, if they do so, would prefer to do it over a technology-related medium, such as text or email (Beekman, 2011).

While both generations appreciate the importance of working out conflicts, the medium in which they prefer it to happen varies. Millennials, having grown up around technology, are much more comfortable with using CMC to resolve conflict and engage in negotiations. Baby boomers, on the other hand, would much rather work out differences in person. Another difference between the two generations is the nature of the conflict itself. The millennial generation is much more conflict-averse than generations preceding them, instead focusing on establishing camaraderie and trust so that overly negative conflict does not emerge (Myers and Sadaghiani, 2010). The baby boomers' larger tolerance of conflict therefore stands in stark contrast to millennial preferences. However, millennials are much more accustomed to using CMC as a tool with which to resolve conflict or engage in negotiation. Baby boomers are not nearly as accepting of using CMC for conflict resolution, as they are with traditional face-to-face communication.

In summary, CMC, while it has made teams and businesses more effective than ever, still has numerous features and unique traits that can prevent teams from understanding each other as thoroughly as a traditional face-to-face team could. Because CMC is a less rich medium, the messages that are conveyed have fewer nonverbal cues that team members can pick up on. Furthermore, flaming and emoticons are new trends that did not exist prior to CMC that significantly affect how communication and emotion is conveyed. Finally, the advent of technology to transform any company into a global one is causing teams to become more diverse than ever. The workforce is becoming more

equal in gender and more diverse generationally as millennials begin to enter the workforce. Different communication styles further confuse emotions, and CMC can make discerning what emotions are truly being conveyed much more difficult and ambiguous than ever before. Flaming, emoticons, and conflict resolution over CMC are all new issues that the professional world has to tackle. Further understanding ways in which they impact effective team communication can help businesses utilize virtual teams more powerfully than before.

METHODOLOGY

Theoretical Background

Because CMC has so many unique characteristics within it, in addition to the increasing amount of diversity of users of CMC, there are numerous factors to be measured in determining how CMC users respond to various aspects of the medium. As mentioned previously, flaming and emoticons are qualities unique to a technology-based medium, and conflict and conflict resolution can differ greatly in a technology setting from face-to-face situations. Because CMC is still such a relatively new phenomenon in today's world, numerous users of the technology have not "learned" yet how they handle interacting over CMC, or how their messages may come across. A seemingly innocuous message from one user could possibly be taken as a personal attack by another, for instance.

Furthermore, different age groups tend to view CMC in hugely different lights. As stated earlier in this paper, the workplace today is made up of multiple generations, some of which did not grow up in a world where CMC was as commonplace as it is today. Conversely, the younger generations that are beginning professional careers grew up

being familiar with computers and CMC. These two different perspectives concerning technology and CMC can result in wildly differing viewpoints about what is and is not appropriate for professional communication over CMC. In addition, the increasingly diverse gender makeup of the workplace further complicates this issue. The “traditional” thoughts of how men and women communicate differently have been examined through technology-related mediums in order to help determine what methods of communication help which gender when working together in a team.

Some studies in recent years, such as the ones outlined in the literature review section, have attempted to measure how various social cues and messages (such as emoticons, for instance) are interpreted, along with how effective they are at conveying feelings. This study aims to verify how different emotions are felt, and often potentially misinterpreted, when conveying a message over CMC. There are multiple hypotheses that will be tested. Each aspect of CMC (flaming, emoticons, and conflict resolution) is to be focused on, along with how different genders and generations perceive them.

Flaming is viewed negatively by society as whole. Numerous researches, such as Savicki and Kelley (2000), have investigated how different genders perceive flaming. While no gender was truly comfortable with flaming, Savicki and Kelley (2000) were able to conclude that male team members were more likely to tolerate flaming than female team members. In addition, Kallinen and Ravaja (2005), and Goudreau (2013) have all discussed that team members, regardless of generation, universally have a similarly negative point of view towards flaming. Based upon these arguments, the following hypotheses are proposed:

***H1a:** Male members of teams will tolerate flaming more than female group members.*

***H1b:** Male members of teams will engage in flaming more than Female group members.*

***H2:** Both baby boomer and millennial members are no different in regards to engaging in and tolerating flaming in a group setting.*

This study also focused on use of emoticons. Different genders and generations perceive emoticon usage in different ways. One study concerning how gender factors into emoticon usage focused on in the literature review was conducted by Wolf (2000). Wolf found that female group members used emoticons to express “solidarity, support... and thanks” (p. 832) while male group members mainly used them to focus on sarcasm. In addition, Beekman (2011) and Robinson and Stubberud (2012) looked into how emoticons are perceived by different generations. Their findings indicated that younger generations, such as the millennials, are “much more likely to utilize them” than older generations such as the baby boomers (Robinson and Stubberud, 2012). With these findings in mind, the following can be hypothesized:

***H3a:** Female members of teams will support emoticon usage that shows support of other team members.*

***H3b:** Male members of teams will more often appreciate emoticons that express sarcasm or humor.*

***H4:** Millennial members of teams will be more accepting of emoticon usage and in a workplace setting than baby boomer-age teammates.*

Finally, this study also looked into how different genders and generations engage in conflict when utilizing CMC. Such studies have been around longer than the comparatively new investigations into flaming and emoticon usage. Researchers such as Jaffe and Lee (1999), Savicki and Kelley (2000), Byron (2008), and Huajiao and Qing (2012) have looked into how different genders handle conflict and conflict resolution over CMC. Findings indicated that men tended to be more assertive earlier in the discussion, while women, on average, tended to utilize “questions, a personal orientation, and supportive statements” more often (Byron, 2008, Savicki and Kelley, 2000, p. 818). When looking at how different generations engage in conflict over CMC, Beekman (2011) found that millennial team members are more likely to attempt to engage in conflict over CMC than prior generations, who would rather work out conflicts in-person. Accordingly, the study hypothesized the following:

H5: When engaged in conflict over a technology medium, male team members will be more comfortable about communicating than female team members.

H6: When engaged in conflict over a technology medium, millennial-age team members will be more comfortable utilizing CMC to engage in conflict than baby boomers.

Materials and Methods

In order to measure these varying emotions, the investigators conducted a survey in which both the millennial and baby boomer generations were asked to interpret and convey which emotions they felt after observing and reading through a sample message communicated via email. These age groups had both male and female participants. A

total of 201 responses were gathered, with 50 to 51 responses coming from each of the four groups identified: male baby boomers, female baby boomers, male millennials, and female millennials. Gender and age range were the only personal information gathered by this survey. The survey was distributed digitally through email and social media to friends, family, and colleagues of the researchers. Data were gathered and organized using TCU's Qualtrics service, which allowed for a large number of responses to be recorded and analyzed.

The survey included three main sections. After gathering demographic data, three different examples of CMC (utilizing flaming, emoticons, and conflict resolution respectively) were shown to respondents. They were then asked to answer questions concerning their perception and thoughts towards the interaction. A majority of the questions in the survey utilized Likert scales to determine how each respondent felt about the situation he or she observed. However, additional questions required participants to input adjectives describing their feelings using free-response questions. In order to incentivize people to take the test, email addresses were entered into a drawing for a small prize. This also helped prevent numerous responses from the same individual. The full survey can be found in the Appendix.

RESULTS

The following five tables summarize the results of the study. Student's t-tests with unequal variance were performed in order to analyze the data. Each table relates to a specific subject of this study: Table 1.1 references hypotheses related to flaming, Table 1.2 references emoticon-related hypotheses, and Table 1.3 references hypotheses related to conflict resolution. Table 1.4 compiles other questions within the survey that did not

correspond exactly to a hypothesis. The short-answer responses will be discussed further in the next section.

In addition to the tables of results, table 1.5 is a diagram of the demographics whose responses were used in this survey. In total, 201 responses were recorded. 50 responses were gathered for every demographic group apart from female millennials, which had 51 respondents.

Table 1.1: Flaming

	Mean	Standard Deviation	P-Value	Hypothesis Supported?
<u>H1a</u> : Male members of teams will tolerate flaming more than female group members.				
<u>Question 4</u> : If I were watching this conversation unfold, I would be able to tolerate it and allow it to happen.				
Male (100)	2.24	0.92	0.0007	Yes (significant difference)
Female (101)	1.82	0.90		
<u>H1b</u> : Male members of teams will engage in flaming more than female group members.				
<u>Question 3</u> : I have acted similar to Person A in the past.				
Male (100)	2.58	1.34	4.0706x10 ⁻¹¹	Yes (significant difference)
Female (101)	1.51	0.78		
<u>H2</u> : Both baby boomer and millennial members are no different in regards to engaging in and tolerating flaming in a group setting.				
<u>Question 5</u> : Conversations like this one are “simply doing business” and sometimes need to be tolerated in a team setting.				
Baby Boomers (100)	2.07	1.26	0.0038	No (significant difference)
Millennials (101)	1.81	0.97		

Table 1.2: Emoticons

	Mean	Standard Deviation	P-Value	Hypothesis Supported?
<u>H3a</u> : Female members of teams will support emoticon usage that shows support of other team members.				
<u>Question 10</u> : I would feel comfortable working with Person C in a team.				
Male (100)	3.72	1.09	0.2530	No (no significant difference)
Female (101)	3.82	1.04		
<u>H3b</u> : Male members of teams will more often appreciate emoticons that express sarcasm or humor.				
<u>Question 11</u> : I would feel comfortable working with Person D in a team.				
Male (100)	3.49	1.14	0.3732	No (no significant difference)
Female (101)	3.54	1.04		
<u>H4</u> : Millennial members of teams will accept emoticon usage and find them more acceptable in a workplace setting than baby boomer-age teammates.				
<u>Question 12</u> : I would have no problem using emoticons when working with team members.				
Baby Boomers (100)	2.30	1.01	0.0774	No (no significant difference)
Millennials (101)	3.20	1.27		

Table 1.3: Conflict Resolution

	Mean	Standard Deviation	P-Value	Hypothesis Supported?
<u>H5</u> : When engaged in a conflict over a technology medium, male team members will be more comfortable about communicating than female team members.				
<u>Question 18</u> : I am comfortable with handling conflict over technology.				
Male (100)	2.60	1.26	0.0008	Yes (significant difference)
Female (101)	2.10	0.98		
<u>H6</u> : When engaged in conflict over a technology medium, millennial-age team members will be more comfortable utilizing CMC to engage in conflict than baby boomers.				
<u>Question 17</u> : I would be comfortable with having this sort of discussion over a technology-based medium of communication.				
Baby Boomers (100)	1.81	0.73	0.2718	No (no significant difference)
Millennials (101)	2.48	1.27		

Table 1.4: Other Questions

	Mean	Standard Deviation	P-Value
<u>Question 8:</u> Person C acted in a professional manner during the conversation.			
Male (100)	2.52	1.02	0.2875 (not significant)
Female (101)	3.07	1.17	
<u>Question 9:</u> Person D acted in a professional manner during the conversation.			
Baby Boomers (100)	2.24	0.87	0.1450 (not significant)
Millennials (101)	2.81	1.07	
<u>Question 13:</u> I consider myself to be a regular user of emoticons.			
Baby Boomers (100)	1.89	1.08	3.0724x10 ⁻⁵ (significant)
Millennials (101)	3.29	1.24	
<u>Question 16:</u> Which person's style of communication did you feel would be more effective at solving the problem?			
Baby Boomers (100)	1.23	0.42	0.0032 (significant)
Millennials (101)	1.72	0.45	

Table 1.5: Number of Participants

	Baby Boomers	Millennials
Male	50	50
Female	50	51

Analysis

Hypotheses H1 (a and b) and H2 both dealt with flaming. Based on discussion in prior literature, as outlined earlier in this paper, these hypotheses were established to determine whether flaming is discouraged across all groups as a whole, despite the fact that male team members would be slightly more likely to do so than female members. In addition, it was contended that baby boomer and millennial-age team members would agree that flaming has no room in a healthy business environment. In this study, H1 was supported while H2 was not.

In the survey example given, Person A was engaging in flaming another group member, Person B. While both male and female respondents did indicate that they both overall disagreed or strongly disagreed with engaging in or tolerating that behavior in the past, male respondents were slightly more likely to both engage in and tolerate flaming over CMC. Male tolerance (Hypothesis 1A) had an average score of 2.24 ($\sigma = 0.92$), indicating an overall answer of “disagree”, while female tolerance averages were at 1.82 ($\sigma = 0.90$), which was an overall answer of “strongly disagree”. Although these results are similar, they are also statistically significant enough to be of note, with a $p < .01$. The statistical significance is much stronger for hypothesis 1B, which asked about engaging in flaming. Both genders were overall in the same respective averages of “disagree” with 2.58 ($\sigma = 1.34$) and “strongly disagree” at 1.51 ($\sigma = 0.78$), but these averages are much wider. The overall P-score was also $p < .01$.

Hypothesis 2, which contended that baby boomer and millennial-age group members would not have different tolerance levels concerning flaming over CMC, was not supported. Baby boomer respondents gave an average score of 2.07, indicating

disagreement ($\sigma = 1.26$) with the question “Conversations like this one are ‘simply doing business’ and sometimes need to be tolerated in a team setting”. Millennial-age respondents gave an average score of 1.81 ($\sigma = 0.97$), meaning that they strongly disagreed with the same question. The difference was enough to be statistically significant, with a P-score $< .01$. Baby boomers overall were more tolerant of flaming over CMC. While baby boomers still overall condemned the practice, the reported differences in perception merits further investigation.

The next set of hypotheses, H3 (a and b) and H4, looked into the role that emoticons played in CMC. The readings from the literature review seemed to indicate that female team members would support emoticon usage that involved support and encouragement, while male team members would be more likely to accept emoticons that were used to highlight humor and sarcasm. Furthermore, older generations such as the baby boomers would find emoticon usage less acceptable than younger generations, such as millennials. However, both of these hypotheses turned out to not be supported by the data collected.

The example used for these hypotheses involved a friendly discussion between two teammates. Person C was supposed to represent a more supportive and encouraging way to use emoticons. Person D, on the other hand, used emoticons to convey sarcasm or to inject humor into the conversation. The original thinking behind this scenario and the accompanying questions was that female participants would indicate more approval of Person C, while male participants would relate more to Person D. As the results show, there was hardly any difference in support for either person. The mean answers for both

genders, in both scenarios, were in the end roughly a tenth of a point apart, and the differences were not statistically significant.

Hypothesis 4 showed similar trends. Instead of a wider gap between generations, the P-score to indicate approval of emoticons in the workforce was $p > .05$, and the scores for baby boomers and millennials were 1.81 ($\sigma = 0.73$) and 2.48 ($\sigma = 1.27$) respectively. Not only was there no significant approval for emoticons by the millennial data set, but the average response also indicated that they overall disagreed with the statement that they "...would have no problem using emoticons when working with team members". Curiously enough, another question in the survey asked if each respondent considered themselves to be regular users of emoticons. That difference was significant across generations, with a P-score of $p < .01$, and the mean scores were 1.89 ($\sigma = 1.08$) and 3.29 ($\sigma = 1.24$) for baby boomers and millennials, respectively. It seems that while the millennial generation is much more comfortable with using emoticons than older generations are, that comfort does not extend to working within teams or in the workforce.

The final set of hypotheses, H5 and H6, dealt with conflict resolution over CMC. Readings from the literature review suggested that male team members would be more comfortable about conflict over technology-related mediums than female team members. This hypothesis, H5, turned out to be accurate according to the data gathered. The other hypothesis contested that millennial-age team members, having been more accustomed to CMC than baby boomers, would be more comfortable with engaging in conflict over CMC than generations such as the baby boomers. This hypothesis, H6, turned out to not be the case in the end.

In order to test these hypotheses, the third scenario given in the survey involved Persons Y and Z engaging in conflict through technology. After initial tension, Person Y wanted the conversation to continue at a later time, preferably in person instead of over technology. Person Z, on the other hand, wanted the issues to be resolved at that exact moment, even over CMC. This scenario measured each gender's overall comfort with this conflict. Also, by indicating willingness to engage in conflict, it could be determining how different generations viewed conflict over CMC.

For H5, neither gender expressly said that they were fully comfortable with conflict over CMC: males gave an average 2.60 score ($\sigma = 1.26$) while females gave an average 2.10 ($\sigma = 0.98$) score, both signifying their disagreement with the phrase "I am comfortable with handling conflict over technology". This, however, was still a significant enough difference (with a P-score of $p < .01$) to confirm the original hypothesis.

H6, in contrast, was not proven after analyzing the data. Both generations expressed a similar discomfort with engaging in conflict over CMC. Baby boomers were overall stronger in their discomfort with an average score of 1.81 ($\sigma = 0.73$), but not enough to fully distance themselves from millennial feelings, which had an average score of 2.48 ($\sigma = 1.27$). The P-score for this hypothesis was $p > .05$. There are, however, a few different possible explanations for why this hypothesis was not proven.

DISCUSSION

Conclusions and Explanations

The results gathered from the survey, as demonstrated above, are cause for multiple avenues of discussion. Furthermore, because some hypotheses were supported

and others were not, further investigations towards possible future research can be established. In addition to the Likert scales question responses outlined above, open-response questions can also be analyzed to see what other trends may exist concerning CMC and individuals' perceptions of it.

Some common descriptors of the flaming scenarios for Hypotheses 1 and 2 involved words such as "rude", "abrasive", and "harsh". Many respondents gave their thoughts on what they observed, overall saying that Person A had no right to be so harsh to Person B, no matter what he or she may have done. Some respondents noted that they felt sorry for Person B, and that flaming "has no place in a team setting". These sorts of answers were common across all generations and genders, cementing the idea that flaming is heavily discouraged and looked down upon in teams utilizing CMC. Despite the fact that baby boomer-age respondents were slightly more tolerant of flaming than younger respondents, they still did not accept it in the workplace. This is in contrast to multiple readings which suggested that there was no generational difference.

Next, Hypotheses 3 and 4 need to be further examined to determine why exactly they were not proven. One way in which the results for Hypotheses 3 and 4 can be explained is by looking into not just whether both groups find emoticons acceptable, but also whether they find them acceptable in a working environment specifically. Because this survey did state that these individuals were involved in a professional environment, the scenarios could have been enough of an impactful setting that it altered results. When comparing different genders and different generations, all respondents on average had similar feelings regarding the professionalism of Persons C and D. For instance, male respondents gave Person C an average score of 2.52 ($\sigma = 1.02$) while female respondents

gave an average score of 3.07 ($\sigma= 1.17$), with a P-score of $p > .05$. Similarly, baby boomers gave Person D an average score of 2.24 ($\sigma=0.87$) and millennials gave an average score of 2.81 ($\sigma= 1.07$), with a P-score of $p > .05$. This overall disapproval of the lack of professionalism present could help explain the other results. Keeping a workplace culture “professional” and sophisticated is stressed through reinforcements from work or from expectations set while in school. In short, respondents could very well be okay with using emoticons- just not while at work.

This possible explanation can also be supported by the open-response answers provided in the survey. Despite the overall disapproval demonstrated by all groups involved, numerous respondents still regarded Person A and Person B as “friendly” and “fun to work with”. In contrast though, some respondents indicated that their usage of emoticons was not appropriate for a workplace setting. Some even indicated that the two sample persons came across as flirty, which clearly would cross professional boundaries. Again, these sentiments came from all generations and genders, which could very well explain the common overall disapproval that seemed to arise in this scenario.

Finally, Hypotheses 5 and 6 need to be looked into. Hypothesis 5 demonstrated that male team members would be slightly more comfortable with engaging in conflict over CMC. Even though male respondents still overall disliked the idea of working out conflict virtually, there were more sentiments expressing comfort with the idea than among female respondents. Some male responses noted that they were okay with talking things out online, even if they “prefer not to do so”. In contrast, multiple female respondents noted that the conversation was “uncomfortable”, “tense”, and “awkward”.

Hypothesis 6 also needs to be examined to find possible reasons why it was not supported. First, as discussed in the literature review, the millennial generation as a whole is more conflict-averse as a whole than generations before them. Even though CMC is a medium in which they are more comfortable, conflict still comes off as unpleasant for them. Another possible explanation could lie in the fact that other questions in the survey indicated that millennial-age respondents were more comfortable with the idea of discussing conflict over CMC, just not with conflict as a whole. A question in the survey asked which person's style of communication was preferred. The generational gap was evident in the response to this question. Baby boomer-age respondents were much more supportive of Person Y, while Person Z's willingness to discuss the issue then and there over CMC appealed much more to millennials. In the survey results, a 1 corresponded to Person Y while a 2 corresponded to Person Z. When asked who they thought had a more effective way of solving the problem, baby boomers gave an average score of 1.23 ($\sigma=0.42$) and millennials gave an average score of 1.72 ($\sigma=0.45$). These results were significant, with a P-score of $p < .01$. Again, it seems that millennials are more willing to engage in conflict over CMC, but still dislike conflict as a whole.

Limitations and Future Research

As with any study, there were some limitations that could possibly alter results if they were addressed. Perhaps the largest such limitation is the convenience sample chosen for this survey. Family, friends, peers, and colleagues were the individuals asked to take this survey. Despite being a large sample, it is not a truly random one. As such, respondents may not have had a sufficiently diverse set of experiences and mindsets to pull from. The individuals polled for this survey were largely part of a similar culture and

background: American, well-educated, and similar areas of study or careers. First, the fact that largely American respondents answered ignored the possibility of what individuals from diverse cultures could think. Other cultures could interpret messages and behaviors differently. Next, a large majority of survey-takers either had a college degree or were currently attending school. Somebody with a more “blue collar” background could potentially answer this survey in a different way. Furthermore, multiple respondents were from the Neeley School of Business at Texas Christian University. The “business major” mindset could differ wildly from somebody attending college to teach elementary school.

Another limitation with this study was that, for numerous hypotheses, only a single question was used to measure a specific variable. Because of this, internal reliability was not able to be calculated. These limitations regarding the survey and survey respondents must be taken into account when looking at the results and conclusions.

In regards to possible opportunities for future research, the conclusions of this study along with the limitations discussed suggest multiple possible avenues to pursue. First, the fact that the survey results concerning baby boomer preferences in flaming did not agree with prior research seems to suggest that further investigation can be done in that field of study. Next, looking into how different cultures perceive these aspects of CMC could add a new global perspective into the mix that was not present in this study. Because business teams are collaborating more frequently with team members across the globe, this direction of study would be increasingly relevant in the modern day virtual team. Another possible direction to consider is to examine how differently people

perceive CMC when it is used in different settings. This paper focused a standard business professional setting. Looking into whether different workplace cultures, such as that of a school or blue collar environment, for instance, could reveal different findings. Finally, this paper focused exclusively on text-based CMC. However, non-textual CMC mediums such as video calling are becoming more commonplace as technology advances. Future research regarding CMC could investigate how non-textual CMC is different from both text-based CMC and in-person communication.

IMPLICATIONS

Limitations and future possibilities aside, the results of this study could lead to important conclusions for the current business world. As human beings, we are learning a new way in which to communicate that has never before been possible until recently. At the same time, however, the importance of communication itself is no less important. In today's fast-paced world, businesses and teams cannot afford to lose time misinterpreting each other over CMC, no matter how familiar they are with the technology involved. There are numerous implications for the information gathered in this study. Not only is this useful from a managerial perspective, but it is also invaluable for day-to-day use, as people continue to utilize email and CMC more frequently in their lives.

Beginning with flaming, it was shown that all genders and all generations dislike the use of flaming. The action harms relationships and destroys group camaraderie. However, it was found that baby boomer-age respondents were more tolerant of flaming in a group setting. This does not mean that they support the practice, though. Simply enough, flaming should at all costs be avoided when communicating with others over CMC. Concerning emoticons, this study demonstrated the importance of properly using

emoticons in the workplace. While younger generations may be more accepting of emoticon usage than older age groups, this does not mean that they can be used casually and frequently. Instead, overuse of emoticons can easily come across as unprofessional and potentially discomfoting to team members, regardless of gender or generation. Emoticons should be used sparingly in a professional team setting, particularly if relationships within the team are not particularly strong.

Finally, this study also analyzed how conflict resolution can be affected by CMC. Similarly to flaming, the survey conducted for this paper demonstrated that people are averse to engaging in any sort of conflict, perhaps as a way to not damage relationships within the team. However, the study also indicated that baby boomers are more tolerant of an environment that uses flaming. That said, men and the baby boomer generation are slightly more comfortable with conflict according to the study. Paradoxically, however, people appreciate when conflict is properly brought up, because it allows a team to better understand one another and move on with the task at hand. The “proper” way to do so, though, is dependent on the makeup of the team. Millennials are more comfortable with engaging in conflict over CMC than baby boomers, even though they are still uncomfortable with the practice. Despite this generational change in preference, millennials are still open to the idea of discussing conflict in person. Because of this, any conflict is best handled in-person rather than over CMC. If absolutely necessary, however, younger team members would be more comfortable with working things out via technology.

Another implication for everyday use from this study is the increased awareness with which one can go about communicating with others using CMC. Because CMC can

easily be misinterpreted, and there are so many viewpoints about “proper” use of technology, it is important to always know how any message sent out using CMC could possibly be misunderstood. Knowing the recipients of the message, along with their preferences and tastes, is the best way to ensure that CMC is effectively used.

This paper and the research presented ways in which team members can more ably communicate with each other over CMC. Furthermore, the ability to tailor one’s message to the correct audience, no matter the gender or generation involved, is vitally important. This paper also helped demonstrate how different genders and generations of teammates respond to different aspects of CMC. Even though there are well-documented differences between the communication styles of different genders and generational groups, there are still some core similarities that can be drawn on to help unite a team. Creating a high-functioning team can help ensure success for a business, and teams today are more likely to utilize CMC than ever before. Learning how to use CMC and not be handicapped by it is crucial for businesses to succeed into the 21st century.

APPENDIX A: CMC QUESTIONNAIRE

Consent Statement

This research project is being conducted by Adam Bartek (Undergraduate Honors Student; Business Information Systems; Texas Christian University; Study Investigator) and Beata M. Jones, Ph.D (Honors Faculty Fellow and Professor of Business Information Systems Practice; Neeley School of Business; Texas Christian University; Principal Investigator). You are invited to participate in this research project concerning the role of emotions in virtual teams.

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time.

Should you decide not to participate in this study or if you withdraw from participating at any time, you will not be penalized.

This procedure involves filling out an online 21-question survey that will most likely take no more than 10 minutes to complete. Your responses will be confidential and we do not collect identifying information such as your name or IP address. Beyond some fundamental demographic questions, the survey asks questions about your opinions regarding specific traits of computer-mediated communication and how emotions are affected when reading and observing sample scenarios.

We will keep your information confidential. All data is stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you. The results of this study will be used for scholarly and research purposes only and may be shared with Texas Christian University representatives.

If you have any questions about the research study, please contact:

1. Adam Bartek by phone at (214) 554-4857 or via email at adam.bartek@tcu.edu
2. Beata M. Jones by phone at (817) 257-6948 or via email at b.jones@tcu.edu

By agreeing to participate in this study, you agree to the following:

- Anyone who agrees to participate in this study is free to withdraw from the study at any time without penalty.
- I have read and understand all of the above material.
- I understand that it is not possible to identify all potential risks in an experimental procedure.

Yes, I agree and consent to participate

No, I disagree and do not consent to participate

Demographic Information

1. What is your gender?

Male

Female

2. What generational group best describes you?

Baby Boomer (1945-1964)

Millennial (1980s-2000)

Other

Instructions: Read the following conversations between two group members. Keep in mind that these conversations are done using a text-only medium, such as over email or an instant messaging program. After reading, indicate how you either agree or disagree with the following statements and answer the questions:

Conversation 1

Person A: What do you think you've been doing??

Person B: What do you mean?

Person A: You know exactly what I'm talking about. Your stupid mistakes on the business case have screwed everything up for the whole team. I hope you're happy.

Person B: I did the best I could. I didn't have all the information that was needed and I didn't know who to ask.

Person A: That excuse is TERRIBLE and you know it!!! If you mess something like this up again I will do everything I can to make sure somebody GETS YOU KICKED OUT OF THIS TEAM ASAP. GOT IT??????

3. If I were watching this conversation unfold, I would be able to tolerate it and allow it to happen.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

4. Conversations like the one above are "simply doing business" and sometimes need to be tolerated in a team setting.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

5. I have acted similarly to Person A in the past.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

6. List up to three adjectives that come to your mind when observing this conversation:

7. Please list any other thoughts you have concerning the interaction between these two team members:

Conversation 2

Person C: Hey! :) How are the financials coming along?

Person D: Hi there- they're going well enough, there are just some extra items I need to get from HR once they get back from their break. You know how much they love working with us. :p

Person C: Well, I know you can do just fine! :D These things always work out in the end. ;)

Person D: Well, the last time I had to bug them we didn't exactly beat any deadlines. :/

Person C: I talked to some of the managers, though. They said they'd look into the issue. I think it'll be fine this time. :)

Person D: You are the best at being really annoying and bugging people, so I'm glad we have you for that. ;) I'll let you know if something comes up.

Person C: Please do, and let me know if you have any questions! :D

8. Person C acted in a professional manner during the conversation.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

9. Person D acted in a professional manner during the conversation.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

10. I would feel comfortable working with Person C in a team.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

11. I would feel comfortable working with Person D in a team.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

12. I would have no problem using emoticons when working with team members.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

13. I consider myself to be a regular user of emoticons.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

14. List up to three adjectives that come to your mind when observing this conversation:

15. Please list any other thoughts you have concerning the interaction between these two team members:

Conversation 3

Person Y: Before we get distracted again could we talk about how our meetings have gone the past few times? There are some things I think you need to fix.

Person Z: That I need to fix? You're the one who always makes everybody feel terrible at the end of these meetings.

Person Y: All I'm trying to do here is make sure that things go as quickly as possible around here. You always want to talk about everybody's days and distract the group.

I would rather be done with these meetings as quickly as possible. I'm very busy you know.

Person Z: And we're all busy here! I just feel like you're treating everybody here like a bunch of workhorses, and we never have any time to learn how to work together.

Person Y: That doesn't matter though. We just need to stick around and get things done. I was put in charge of this team, you know. If you still have a problem, come by my office. We don't need to waste any more time right now.

Person Z: What's wrong with discussing this right now? If we need to talk things out to feel better we should do so.

Person Y: This seriously isn't the time or place. We can talk about this later. Now, back to business...

16. Which person's style of communication did you feel would be more effective at solving the problem?

Person Y

Person Z

17. I would be comfortable with having this sort of discussion over a technology-based medium of communication.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

18. I am comfortable with handling conflict over technology.

Strongly Disagree Slightly Disagree Neutral Slightly Agree Strongly Agree

19. List up to three adjectives that come to your mind when observing this conversation:

20. Please list any other thoughts you have concerning the interaction between these two team members:

21. Please enter your email address here to be entered into a drawing. Your address will not be tied to your answers in any way:

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