

The Visual Language of Emojis:
A Study on College Students' Social Support Communication in
Online Social Networks

By

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ABSTRACT

The transition from high school to college can be stressful, and research suggests that stress is often the trigger of mental health issues like depression and anxiety among college students. Social support can be critical in helping young adults adjust to college and buffering college students from the negative effects of stress. In this digital media age, social support can be attained through interactions on social network sites such as Facebook or Instagram. A major disadvantage of computer-mediated interactions is the difficulty of incorporating nonverbal cues such as facial and gestural expressions. While the absence of visual cues has been a challenge for effective online supportive communication, the recent emergence of emojis addresses this issue.

This dissertation examines how college students use emojis to communicate social support on Instagram. Specifically, it examines how emoji use is associated both with stress and with types of social support messages. Three empirical studies were conducted: content analysis of Instagram posts including the *#collegeproblems* hashtag, content analysis of the visual representations of emojis, and five focus groups with undergraduate college students.

Results show that college students share thoughts about schoolwork, self-expression, and physical and mental health on Instagram. In addition, emojis are often used to enhance the sentiment of a message or express empathy, as well as to convey humorous or sarcastic expressions. The ambiguity of emojis makes it particularly suitable for emotional communication because one of the benefits of visual language communication is its interpretive flexibility. However, the findings also indicate that visual representation discrepancies with the current design and development of emojis can cause miscommunication and lead to unsupportive interactions.

As one of the first studies examining the role of emojis in online supportive communication, this dissertation offers theoretical and practical implications regarding the use of visual graphics in social support. Concepts and measurements used in this study inform future studies in online communication, emojis, and visual communication. For scholars interested in studying social support and empathy, this study provides a mixed-methods framework for understanding these complex concepts.

Keywords: emojis, social support, Instagram, visual communication, virtual empathy, online social networks, college adjustment

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CHAPTER I

INTRODUCTION

One of the main disadvantages in online communication is the lack of visual cues. The absence of facial expressions and hand gestures, which is central to conveying empathy in face-to-face communication, causes online interactions to be more difficult in emotional or stressful situations. One of the solutions many users have adopted to overcome this communication barrier is to incorporate the use of visual graphics like emojis in online utterances. While recent research on emojis has focused on sentiment and interpretation issues (Novak, Smailović, Sluban, & Mozetič, 2015; Miller et al., 2016), there is a lack of research on how emojis are used for demonstrating social support and virtual empathy.

As an interdisciplinary study, this dissertation examines the use of emojis for social support in three perspectives. First, the study examines the topics of stress college students are sharing with their online social networks and how they are using emojis in posts and responses. Second, the study examines the differences in the visual representation of emojis and its effect on how emojis are used. Third, the study examines whether emojis are used to show empathy in online communication when visual cues are absent.

This chapter provides an overview of the current dissertation research. First, a summary is presented on the background and relevancy of studying emojis used in online communication and issues associated with the college experience. Then, a brief discussion of theoretical frameworks and methodologies used to examine the research topic is provided. This chapter concludes with a discussion of the contributions and

implications of this dissertation topic for academic research and the future of higher education.

Background and the Research Topic

At the time of this dissertation, emojis in recent news include the addition of the original 176 emojis to the collection at the Museum of Modern Art in New York (Pierson, 2016), a job listing for the first “emoji translator” at a global translations firm (Petroff, 2016), and the release of the trailer for “The Emoji Movie” (SonyAnimation, 2016). There are currently 1,851 emojis available through Unicode 9.0 and 51 emojis have already been approved for the next iteration, Unicode 10.0 (“Giraffe, Pretzel, Vampire Emojis for 2017,” 2016). These industry reports on how emojis are being incorporated into people’s daily lives have proven that it is not simply a passing fad or just a temporary trend.

In the rapid development of emojis, though, there has not been much research or discussion investigating the problematic issues surrounding emoji use in online communication. Many emoji designers and users have discovered first-hand that the semantic meanings for emojis vary from person to person, as well as the sentiment each visual icon expresses. For example, emojis for the peach 🍑 and eggplant 🍆 “rarely refer to produce” (Dewey & Dewey, 2016, para. 6). In addition, while the neutral face emoji (😐) was designed to convey neutrality, it is perceived as a fairly negative expression according to the Emoji Sentiment Ranking (Novak et al., 2015). As the collection of emojis continues to grow, it becomes even more essential to understand how emojis are developing as a visual language.

On online social networks, emojis are also gaining ground not just in quantity but in methods of application as well. New updates to online social networks like WhatsApp and Snapchat have included emojis in status features to allow users to express their current activity state (Cipriani, 2017). In the wake of Donald Trump's 2017 inauguration as president, Twitter users included the raised fist emoji () after their usernames to signify themselves as a member of the resistance movements (Azhar, 2017). In 2015, Instagram introduced the capability to add emojis to hashtags to support communication of "emotions and feelings in ways that anyone can understand, regardless of language or background" ("Three New Filters and Emoji Hashtags," 2015). A recent study by Quintly, a social media analytics firm, found that over half of Instagrammers, or Instagram users, use emojis and that posts with emojis generated more interaction than posts without (Morrison, 2017).

This dissertation investigates whether and how college students use emojis on Instagram for supportive communication with peers. Specifically, it examines how emoji use is associated with different topics of distress and types of social support messages. This dissertation research also analyzes how virtual empathy is enacted in online interactions and whether emojis are used for empathetic purposes. Another aspect analyzed in this research is whether and how the visual characteristics of emojis affect the frequency of their use. To do this, this research studied the differences in the visual representation of an emoji across different operating systems and the perceived sentiment associated with an emoji. Lastly, this dissertation also explores how the use of emojis differs depending on the strength of the relationship between users in online communication.

There are several important reasons for focusing on college students' use of emojis over Instagram. First, almost 60% of Instagrammers from the U.S. are between the ages 18 and 29 ("Who uses social media," 2017), establishing it as a viable source for studying how college students communicate in an online social network. Second, while Instagram is sometimes perceived to be a platform for curated content with images manipulated to portray the subject in the best positive light, it can also be a powerful tool for self-expression and storytelling. Early studies on Instagram have primarily examined commercial issues like identifying what types of photo attracted more interaction with consumers (Bakhshi, Shamma, & Gilbert, 2014) and how organizations can incorporate the use of Instagram to enhance audience engagement (Weilenmann, Hillman, & Jungselius, 2013).

Recent research has started focusing on how health and mental issues can be identified or mitigated through the use of Instagram. In a study on how Instagram is used for practicing healthier lifestyles, researchers found that participants used it to connect with others sharing the same goals, exchange information on exercise and diet plans, and receive "emotional support they needed to accept their failures and move on" (Chung et al., 2017, p. 5). Another study examined posts using the hashtag *#depression* on Instagram and the comments each post generated (Andalibi, Ozturk, & Forte, 2017). The study found that posts sharing high levels of personal information brought about more comments and signs of support. As the number of Internet users proceeds to grow and technology continues to advance, Instagram is evolving from a platform where users only share joyful moments to supporting communities that allow for expression of complex emotions during times of distress.

Relevance of the Research Topic

According to the most recent mental health survey by the American College Health Association, stress and anxiety are the top two diagnosed mental health problems among college students (American College Health Association, 2016). While the stress college students experience on a daily basis might be common everyday stress, if left unmanaged, it can negatively impair their physiological and psychological health. Early studies on health and stress found that individuals under prolonged stress may be especially susceptible to cardiovascular and infectious disease (Adler & Matthews, 1994). Studies in neuroscience have found that due to the development stage of the frontal cortex, people are the “most vulnerable to the effects of stress” during early adulthood (Lupien, McEwen, Gunnar, & Heim, 2009, p. 441). If a student experiences long periods of adversity or stress during this critical developmental period, it can lead to negative long-term effects like slower brain development or occurrences of depressive symptoms later in life.

One of the challenges students encounter while transitioning from high school to college is learning to adapt and adjust to new everyday scenarios, from navigating unfamiliar academic systems to forming new social acquaintances. The transition period after high school can be particularly stressful, as it is considered a major “turning point” for many young adults with the potential to have substantial influence on psychological health (Gotlib & Wheaton, 1997, p. 198). This period in life can also be stressful because not only are students experiencing developmental changes, they are also undergoing “a major reorganization of one’s social network” (Yang & Brown, 2012, p. 403). When

college students fail to transition and integrate into college life successfully, it can result in their dropping out of school after the first year (“Freshman Retention Rate,” 2015).

Social support can help minimize negative effects associated with college adjustment by serving as a buffer to protect a stressed student’s physical and psychological well-being (Thoits, 2011). According to the communication perspective definition of social support, “the study of ‘social support’ is the study of supportive communication: verbal (and nonverbal) behaviors intended to provide or seek help” (Burlison & MacGeorge, 2002, p. 384). By examining how college students interact over online social networks like Instagram, this dissertation hopes to understand the issues of stress students encounter and the role of emojis in their online communication.

Scope of Research: Theoretical and Methodological Frameworks

In examining the research topic, this dissertation uses theoretical frameworks and operationalizations from the areas of social support and visual communication; more specifically, Social Support Typology offered by Cutrona and Suhr (1992), Politeness Theory by (Goldsmith, 1994; original source: Brown & Levinson, 1987), Everyday Stress Survey by Gruttadaro and Crudo (2012), Visual Morphemes by Cohn and Ehly (2016), and Emoji Sentiment Ranking by Novak, Smailović, Sluban, and Mozetič (2015).

Methodologies used in this research are content analysis of Instagram posts and emoji representations, as well as focus groups with college students who are active users of Instagram. Content analysis was first conducted on a year’s worth of Instagram posts using the hashtag *#collegeproblems* to identify topics of distress, types of social support generated, and how emojis are used in captions and comments. Next, a second phase content analysis was conducted to examine how emojis are represented differently across

different operating systems and devices. Finally, five focus groups were held with undergraduate students to understand how emojis are incorporated into supportive online interactions.

For the purpose of this dissertation research, social support is defined as the human interaction and communicative process in which belonging and esteem needs are addressed (Burlleson, Albrecht, & Sarason, 1994). The different types of social support are identified as emotional support, informational support, esteem support, network support, and tangible assistance (Coulson et al., 2007; Cutrona & Suhr, 1992; Burlleson, 2003). Though the Internet was mainly used for informational support when it first came into existence, as an online bulletin board system for developers to exchange information, it has since evolved into a realm where other types of support can be sought at any time and from anywhere. With advancements in today's communication technology, social support can be accessed between members geographically distant over a multitude of platforms and devices. Internet users can participate in online support groups to exchange social support from the comfort of a home office, or engage in continuous asynchronous peer-to-peer conversations from mobile devices.

One of the major disadvantages and struggles with computer-mediated communication, though, is the difficulty of incorporating nonverbal cues, like the facial and gestural expressions present in face-to-face communication (Derks, Fischer, & Bos, 2008). These visual cues are essential components for effective supportive communication, especially for conveying caring and empathy as it generates feelings of companionship and comforting behaviors (Carrier, Spradlin, Bunce, & Rosen, 2015; Hoffman, 2008). Participants in face-to-face situations can see subtle displays of distress

and react with immediate comforting behavior like offering a hug or a concerned look to show acknowledgement.

The recent growth in the use and development of online visual graphics, like emoticons and emojis, suggests a possible solution Internet users have adopted to overcome the challenge in conveying emotion, including empathy, in the digital environment. From reaction buttons on Facebook to animated GIFs on instant messaging, these online interactions can be used to help communicate affective expressions otherwise unachievable with plain text. With 90% of young American adults being social media users (Perrin, 2015), social network sites like Facebook can be an effective mode of communication for college students to access virtual empathy and other forms of social support.

Colleges and universities should be preparing students not only for the real world by developing knowledge or technical expertise, but building social skills and emotional understanding as well. Recent studies in higher education found that empathy can transform the way students view and relate to the world (Dolby, 2012) and that empathy is critical in creating positive virtual learning environments (García-Pérez, Santos-Delgado, & Buzón-García, 2016). Empathy is defined as experiencing and understanding an emotional state triggered by another's emotional state, which may lead to shared feelings and comforting behaviors (Carrier et al., 2015); Hoffman, 2008). It is generally experienced by an empathetic person as a response to the distressful situation of another or others.

While the lack of visual cues might deter virtual empathy conveyed through facial expressions and gestures, online social networks can still provide empathetic

communication through explicit forms of communication. Like any life skill, empathy can be taught in classroom settings but requires socialization with others for proper development. Since empathy can build camaraderie and minimize experiences of isolation (Barak, Boniel-Nissim, & Suler, 2008), promoting the practice of empathy in higher education can strengthen the feeling of belonging to the community as well as decrease feelings of loneliness among new students.

Although factors like learning motivation, institutional commitment, and sense of purpose can also influence academic achievement, recent studies found that social media use can help students adjust to college life by providing access to social resources (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012; Yang & Brown, 2015). College students often find themselves living on their own for the first time and struggling with feelings of loneliness. Early research on college students found that loneliness was associated with smaller social networks and less active interpersonal communication (Ponzetti, 1990). In 2015, one in three students left college after their freshman year due to loneliness and family issues (“Freshman Retention Rate,” 2015). Without a proper social support network, feelings like loneliness and anxiety can be exacerbated and manifest into more severe forms of psychological distress (Gruttadaro & Crudo, 2012).

As online social networks become larger and more diverse, not all online social networks are social support networks, as not all online interactions are associated with social support (Li, Chen, & Popiel, 2015). Since interactions on social network sites like Facebook tend to be broadcast to the entire network, users may have migrated to other applications and technology for more intimate communication or to access social support for more personal issues. If a college student is struggling with loneliness, he or she may

feel more comfortable disclosing the situation with family and friends privately through text messaging applications like Facebook Messenger rather than disclosing it to the entire network on a wall post.

Recent research on online social networks found that interaction on platforms like Facebook can be itself insufficient at providing students with the social support they need (Wohn & LaRose, 2014). Despite having an intimate and active network, distressed individuals sometimes still find their existing social networks inadequate at providing the social support they seek due to the private matter of the situation or uniqueness of the experience (Coyne, Ellard, & Smith, 1990; Cummings, Sproull, & Kiesler, 2002). Unwarranted offers of assistance or accepting help from familiar people may also be undesirable and intensify feelings of embarrassment for the distressed (Albrecht & Adelman, 1987; La Gaipa, 1990). For example, college students hoping to develop independence might be reluctant to accept financial assistance from their parents, as it would make them feel like a dependent again.

While there is a growing amount of research investigating how college students use online social networks for social support (Hollenbaugh & Ferris, 2015; Li, Chen, & Popiel, 2015; Special & Li-Barber, 2012), not much has been done on examining how emojis are used for supportive communication or expressions of empathy. This dissertation research aims to fill this gap through a combination of content analysis and focus group research.

Contributions of the Study

This study contributes to research in communication and other areas in several important ways. First, it is one of the first empirical studies to systematically examine

college students' use of emojis in terms of social support. Theoretical concepts and measurements used in this study inform future studies in online communication, emojis, and virtual empathy. Examining a newer form of communication, such as the use of emojis, presents the challenges due to lack of previous research on the topic.

This study also offers implications for visual communication research. In visual communication, visual languages like emoticons and emojis are used to indicate affect for more personal and friendly communication (Walther & D'Addario, 2001). The ambiguity of emojis makes it particularly suitable for emotional communication because one of the benefits of visual language is its interpretive flexibility (Horn, 1998). However, this flexibility can also be overly ambiguous and cause miscommunications when the intention of the sender and the interpretation of the receiver are not consistent (Derks, Bos, & Grumbkow, 2008). The disparity between participants could hinder the development of emojis as a visual language and create inconsistencies in its visual grammar. Therefore, understanding the construction of emojis as a visual language can influence the future design and development of emojis.

As one of the first studies examining college students' attitudes toward emojis, this study also offers several practical or policy implications. If college students are used to communicating with emojis and regard communicators who use emojis as more empathetic, then higher education institutions might want to consider incorporating the use of emojis to cultivate stronger and more personal relationships between the institution and the student body. By understanding how college students perceive emojis, this dissertation aims to understand how the use of emojis can foster improved interactions between school organizations and the student body.

As technology becomes more sophisticated to deliver other visual forms of communication, understanding how users interpret and create the nuances of a visual language grows increasingly important. The culture of the digital world will only continue to grow more diverse as more of the world becomes digitally connected and more of the global population becomes Internet users. Understanding how to design and develop an effective system of emojis can be beneficial to all the participants involved.

CHAPTER II

LITERATURE REVIEW

This dissertation is an interdisciplinary study of how college students use emojis for online supportive communication. This chapter provides theoretical frameworks from communication studies, visual communication studies, and educational psychology studies.

The first section on communication studies frameworks covers social support needs of college students in online interpersonal communication. Social support can be beneficial in assisting distressed students in situations filled with emotional duress (Burlison & MacGeorge, 2002) and online social networks like online support groups can be an efficient resource for providing social support (Coulson & Greenwood, 2012; Li, Chen, & Popiel, 2015).

The second section presents an overview of the terminology associated with online social network research as well as relevant previous studies in online social networking. While there are many different types of online interactions, this section also discusses the value of understanding the use of visuals by young adults, in particular, college students.

The third section on visual language from visual communication studies will provide a lens for examining emoji representation and interpretation. Visual language is used to help convey complex ideas and is defined as “the integration of words, images, and shapes into a single communication unit” (Horn, 1998, p. 8). Since emojis have become an integral part of online communication today, the section investigates how emojis are developing as a visual language.

The fourth section reviews frameworks from educational psychology studies and addresses the effects of empathy on college adjustment issues. Social support, particularly emotional support, is closely linked with empathy (Coulson & Greenwood, 2012; Cutrona & Suhr, 1992) which can be instrumental in helping students transition from high school to college.

This chapter discusses how each discipline's theoretical framework relates to this interdisciplinary research and the gaps that exist in the present literature, which the dissertation hopes to bridge.

Social Support

Defining Social Support

In mental health studies, social support can be examined in terms of “verbal and non-verbal information or advice, tangible aid, or action that is proffered by social intimates or inferred by their presence and has beneficial emotional or behavioral effects on the recipients” (Gottlieb, 1983, p. 28). In other words, social support is at the foundation of all human interactions and crucial for leading well-adjusted and fulfilling lives. Social support can have positive effects, such as helping buffer individuals from distressing life events, improving recovery rate from medical complications, and enhancing perceptions of self-efficacy (Burlison & MacGeorge, 2002). For this dissertation, social support is defined as the verbal and nonverbal efforts provided by one person with the intention of providing help or improving the well-being of others who are perceived as needing aid or under distress. A communicative approach to studying social support can improve understanding of the communication process and identifying how relationships are developed and maintained.

Not all intended support is perceived as helpful or effective, though. Unsolicited support can put into question a person's capabilities, remind them of their distressing situation, or cause them to question their own self-esteem (Vangelisti, 2009). For example, a college student who has moved far away from home might be struggling with feelings of homesickness and concerned that if people found out, he or she will be viewed as immature or needy. The lonely college student's predicament is not uncommon, as feelings of isolation is one of the top triggers to a mental health crisis among college students (Gruttadaro & Crudo, 2012).

Individuals may also not want to receive support to avoid feeling indebted for accepting help (Albrecht & Adelman, 1987), or out of fear that "receiving support may make the recipient look weak or undesirable information may become known in the interaction" (Goldsmith, 1994). For many new students, the first two years at college is for discovering an interest area to shape into a future career. Therefore, when students struggle with a particular class, they may not ask for support out of fear that it will reflect negatively upon their desire to be viewed as an expert or professional in that content area one day.

Other times, distressed individuals can find their family and friends insufficient at providing the social support they need because of the uniqueness of the experience or the privacy of the situation (Cummings et al., 2002; La Gaipa, 1990). For example, first-generation college students who are struggling academically might not perceive their parents as supportive because of the lack of shared experience. In closer relationships, unwelcome social support can also further threaten a recipient's self-esteem and sense of self-efficacy (Coyne et al., 1990). A family member might offer a student who is having

financial trouble some money. While it is supportive, maybe even helpful, it is not effective because the student may feel like he or she has failed at transitioning into becoming an independent and responsible adult. Therefore, it cannot be assumed that all supportive actions are consequently perceived as helpful or effective.

Providing Social Support via Advice

There are strategies that support providers can apply to minimize the threat when offering support or advice. Advice is particularly difficult to deliver because it is a “face-threatening act” (Brown & Levinson, 1987, p. 68) that might be interpreted as an intrusion upon privacy or wound a person’s self-esteem. According to Brown and Levinson’s politeness theory (1987), there are two types of *face*, or a person’s projected self-image, that an individual desires to protect: positive face (perceived as amiable and capable) and negative face (perceived as independent and autonomous). Facework strategies are applied during communication to project perception of support and maintain relationships while giving advice that is not threatening to *face*.

Politeness theory identifies five ways to give advice and protect *face*: *bald on record*, *redress for positive face*, *redress for negative face*, *off-the-record*, and *not provide advice* (Brown & Levinson, 1987; Goldsmith, 2004). *Bald-on-record* delivers the advice without regard for face. Advice like this is often straightforward and simply tells a person how he or she should behave or address a situation. In the situation of a college student struggling with a class, the advice-giver might simply tell the student he or she needs to stop hesitating and just meet with the teacher. *Redress for positive face* gives advice while reaffirming a person’s desire to be liked and accepted. Messages like this might show an exaggerated sense of approval or empathy, or demonstrate acclamation

(D.J. Goldsmith, 1994). In this case, a friend might say to the struggling college student, “I know you’re trying really hard but talking to the teacher might help.” The advice giver has recognized the student’s efforts first before delivering the advice. *Redress for negative face* offers advice while addressing a person’s freedom. Advice like this is often given with the emphasis that it is simply a suggestion and uses hedging or questions to minimize the threatening act (D.J. Goldsmith, 1994). For example, the college student’s friend might say, “Maybe you should let the teacher know you’re struggling?” *Off-the-record* tries to protect the face by providing advice through indirect language, hints, or metaphors (D.J. Goldsmith, 1994). A person might talk about a similar experience and share information as to how that incident was resolved. The advice-giver to the struggling college student might say, “When my other friend was struggling with this class, he talked to the teacher and was able to get more help.” The final way to avoid threatening the face of the support receiver is to simply *not provide advice*. Whether the facework strategy a support provider chooses to apply is helpful or not is ultimately dependent upon the severity of the situation and the dynamic of the relationship (MacGeorge, Guntzviller, Hanasono, & Feng, 2016).

Social Support Typology

Researchers examining social support have sought to identify supportive communication by analyzing messages using various typologies of social support. One of the most commonly applied social support typologies is Cutrona and Suhr’s (1992) matching model. Developed for studying supportive communication between intimate couples, the model categorizes messages as *emotional support*, *informational support*, *esteem support*, *network support*, and *tangible assistance*.

Informational support is characterized by advice, referrals, situation appraisals, and teachings. It is one of the most frequently occurring types of support (Cutrona & Suhr, 1992). The Internet originally started out as a Bulletin Board System, or an online community, for developers and engineers to exchange information and ideas about the evolving technology (Kaplan & Haenlein, 2010). Today, anybody can go on the Internet and use websites like WebMD.com to find information about health and medical conditions, Academia.edu to find scholarly studies and papers, and Google.com to find answers to almost any question.

Emotional support is about relationships, signs of affection, confidentiality, sympathy, understanding, empathy, encouragement, and prayer. Communication with higher levels of emotional support during times of stress can lead to higher satisfaction in the relationship (Cutrona & Suhr, 1992). Studies on online support groups for health conditions have found that emotional support occurs more frequently than informational support (Coulson & Greenwood, 2012; Evans, Donelle, & Hume-Loveland, 2012), which suggests that people use online social networks as a domain to express emotions in situations of distress.

In a study by Evans et al. (2012), messages shared over an online support group for postpartum depression were analyzed. The research found that most of the messages “were encouraging, empathic, and accepting of each other” (p. 407), which demonstrated emotional support. Although online anonymity allowed participants to disclose their private thoughts and feelings honestly, the participants also received encouraging messages that gave them hope and helped justify their experiences. The study also found

that empathy was communicated explicitly in messages like, “‘stay strong’, ‘hang in there’ and ‘not give up’” (p. 407).

In another study on social support in an online support group for people affected by childhood cancer, Coulson and Greenwood (2012) similarly found that emotional support “was particularly prevalent in messages, notably those conveying empathy and encouragement” (p. 872). Participants frequently exchanged expressions of affection (i.e., “HUG”), sympathy (i.e., “Sorry for your loss”), empathy (i.e., “I know exactly what you are going through”), encouragement, and prayers (Coulson & Greenwood, 2012, p. 873). Even though the comfort of interacting with a physical presence is absent in online environments, online social networks can still be a viable option for distressed individuals to attain the emotional support they need.

Esteem support is often exhibited as compliments, validations, and offering individuals relief from blame. Esteem support can be critical in encouraging active problem-solving skills, especially when people encounter stressful events beyond their control (Cutrona & Suhr, 1992). Studies on self-disclosures on social media have found that Facebook users with lower self-esteem tend to post disclosures that were more negative (Burke, Marlow, & Lento, 2010) and the size of the audience is associated with the level of self-esteem (Manago, Taylor, & Greenfield, 2012).

Burke et al. (2010) surveyed and collected activity data of Facebook users and found that participants with higher levels of self-esteem had increased *social capital*, or social resources that provide access to social support, and decreased feelings of loneliness. This suggests that one of the advantages to participating in large online social networks like Facebook is that it also generates more esteem support. Manago, Taylor,

and Greenfield's (2012) study on college student Facebook users also found that there is a positive correlation between network size and self-esteem. The more “college students feel that they are receiving attention for their self-expressions” (Manago et al., 2012, p. 377), the more likely they are to use online social networks like Facebook to access social resources like esteem support.

Network support, or social network support, is about providing people with access to new connections and companionship with others with similar interests and experiences. Communication of network support has not been found to be meaningful in intimate relationships because the dichotomy of close relationships allows this form of support to function more as actions than words (Cutrona & Suhr, 1992). In online relationships, studies have found that individuals who are motivated to use online social networks like Facebook to build new connections are more likely to make dishonest disclosures (Hollenbaugh & Ferris, 2015) and the majority of connections on Facebook are superficial and impersonal (Manago, Taylor, and Greenfield, 2012). For new college students, network support may help them “avoid drastic disruption of their existing networks and establish a sense of belonging in college by facilitating communication with old friends and access to new people” (Yang & Brown, 2015, p. 246).

Tangible assistance can be offered as a loan, direct task, indirect task, active participation, or willingness to extend a helping hand. This support can help reduce distress in the support recipient by removing some of the responsibilities that is causing stress (Cutrona, 1996). In many studies on online support groups, this is the least occurring type of social support, probably because of the difficulty of executing actual tasks for online people who are geographically distant or unknown.

This five-category typology has been applied in communication research to study social support in a variety of situations—from studying how social support is communicated between intimate partners (Cutrona & Suhr, 1994; Dehle, Larsen, & Landers, 2001; Messersmith, Kunkel, & Guthrie, 2015) to understanding how people dealing with severe medical conditions exchanged social support (Coulson & Greenwood, 2012; Dakof & Taylor, 1990; Mo & Coulson, 2008). Although the five-category typology Cutrona and Suhr developed was originally used for studying face-to-face communication within intimate couples, like the previously cited social support studies, it can be adopted to examine social support interactions online and between college students.

Online Social Support

Other recent researches on online social support have similarly continued to adopt and apply the same five-category typology. It has been used to analyze various types of online interactions, from studying how online social support can be used for weight management (Hales, Grant, Barr-Anderson, & Turner-McGrievy, 2016) to examining how an online support group for a difficult-to-diagnose condition can provide social support for individuals living with a chronic illness (Smedley, Coulson, Gavin, Rodham, & Watts, 2015).

Hales et al.'s (2016) study found that online social support can promote behavioral change among participants partaking in physical activity challenges and “was beneficial for maintaining participant engagement over time” (p. 1697). Interestingly, they found that friends and family on Facebook were perceived as less supportive than Twitter users using hashtag #13in2013 for weight loss because of the difference in interest and goals.

Online support groups can be beneficial when a person's existing social network is inadequate at providing social support or when the situation is uncommon. For example, Smedley et al. (2015) found that in an online support group for people diagnosed with the rare illness Complex Regional Pain Syndrome, almost 75% of the messages were about emotional support, the most popular form of social support observed, and 66% of the messages communicated empathy. One of the primary advantages to online social support is the accessibility to a more diverse population to not only exchange information, but perhaps more importantly, the ability to find others who can understand and share their experiences with a particular situation.

While most recent studies on online social support have focused mainly on supportive communication surrounding medical situations and stress associated with major life events, social support can be found in everyday online interaction. From reacting to a person's status update to reaching out in a private text message, Internet users engage in some form of social support. Although these daily activities can be mundane and trivial, over time, it can also significantly impact a person's social support system and general life satisfaction, and should receive some scholarly attention as well.

Although many college students participate in online social networks, the intensity of use is not always associated with the perception of received social support (Li et al., 2015). Sometimes, even if a person who is emotionally distressed posts a self-disclosure or issues a cry for help to his or her online social network, the signal of distress can go unnoticed or ignored because of how complex networks like Facebook have become (Hollenbaugh & Ferris, 2015). Therefore, other modes of communication such as text messaging or private chat groups can be more effective for individuals in distress to

receive timely emotional support. At the same time, relationships on large social network sites can provide college students with network support by suggesting new activities and connections or enhance esteem support by broadcasting messages to a larger audience.

Online Social Networks

Defining Online Social Networks

Participating in social media activities and online social networks is one of the most frequent activities among adult Internet users in the United States (Li et al., 2015). Almost two-thirds of American adults are members of online social networks and 90% of adults between the ages 18 to 29 use online social networks (Perrin, 2015). The difference between social media and online social networks is that *social media* is more general and defined as services provided through the Internet such as blogs, forums, online discussion boards, and online social networks (Gray, Vitak, Easton, & Ellison, 2013). Online social networks, also oftentimes referred to as social network sites, are digital platforms developed specifically for different relational functions and defined as web-based services where a person can create a public image to make new connections and maintain existing relationships through online interactions (Greenhow, 2011). Online social networks can help reduce the cost, or the effort and time, a person spends to develop and maintain relationships, which in turn allows for the development of a more extensive social network. It is important to note that a *social network* can be offline and is used to describe a system of relationships with family, friends, and acquaintances that the user can exchange resources with (Lu & Hampton, 2016). Online social networks are the digital form of these communities and provide the opportunity for users to exchange

support with other participants they do not interact with frequently or encounter in regular face-to-face environments.

Online social networks are growing in membership and becoming increasingly more versatile as they replace other forms of online communication, like email and instant messaging. Even though some have blamed online social networks for causing a decline in social values, research has actually found that online social networks promote civic behavior because of the sense of belonging that is cultivated in the digital environment (Burke et al., 2010; Greenhow, 2011). In addition, studies show that online social networks also help develop social skills, cultural awareness, critical thinking skills, and interpersonal relationships among younger populations like college students (Gray et al., 2013). Younger Internet users are found to be more comfortable with using online social networks like Facebook to get information about unfamiliar places or make connections with others they have not met face-to-face.

Online social networks can also cause negative effects from issues with addiction to privacy concerns. Chen and Kim's (2013) study on problematic use of online social networks identified six primary reasons people use online social networks: virtual community membership, diversion, self-presentation, relationship maintenance, relationship building, and information seeking. The study found that using online social networks for self-presentation and relationship-building are predictors for problematic use. The study also found that when users' primary goal for using an online social network is entertainment, then they are also likely to forgo their privacy concerns. Another study on problematic use of online social networks explored the issue of Facebook addiction among college students (Akter, 2014). The study found that addicts

tend to use online social networks “as a way to escape worrying or upsetting senses” (p. 463) and that, even if participants are not addicts, they still experience withdrawal symptoms when they have to reduce use of online social networks. As with anything else in life, there can be too much of a good thing, and too much use of online social networks can have negative consequences, from exposing oneself to unwanted contacts (Chen & Kim, 2013) to the deterioration of close connections (Akter, 2014).

Relationships on Online Social Networks

The relationship between seekers and providers of social support can also affect to what degree they perceive their interaction as supportive. Different types of stressors have different support needs and require different supportive relationships (Burlison, 1990). For everyday upsets, one might reach out to friends, while more intense distress might require professional interventions. For example, relationships on Facebook consist mostly of friends and family, from where students might receive reactions and responses days after a post is made. However, if a student is experiencing chronic anxiety or depression, then he or she might benefit more from interactions with an appropriate online support group with members who are more timely and emotionally supportive in their responses.

While many studies since have adapted and modified the dimensions of tie strength, Gilbert and Karahalios' (2009) study identifies seven dimensions to analyze tie strengths on social media: intensity, intimacy, duration, reciprocal services, structural support, emotional support, and social distance. Gilbert and Karahalios (2009) found that strong ties provide social support that affects emotional health and improves mental health; whereas weak ties provide network support and novel ideas for informational

support. Other studies have found that the support students receive from relationships before college can provide emotional support (Swenson, Nordstrom, & Hiester, 2008). Therefore, online social networks like Facebook can be especially effective in helping college students maintain existing relationships, connect with new relationships, and participate in social activities.

Many types of interpersonal relationships exist over any online social network site, and they can be examined in many ways. One way is by tie strength, where “the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie” (Granovetter, 1973, p. 1361). Understanding the tie strength of relationships in a person’s social network is important for identifying the source of social support.

Granovetter identified two types of ties: (1) *weak ties* that are largely composed of acquaintances and (2) *strong ties* that are mainly made up of people who share many similar connections. While we tend to trust the people we have strong ties with more, it does not mean our weak tie connections are meaningless or frivolous. Weak ties can be useful for accessing novel and creative information (Granovetter, 1973). This is because our acquaintances are sometimes more diverse and can provide different unique perspectives, as well as offer more network support because of the different social circles they can provide access to. On the other hand, social support provided through strong ties is positively associated with improved mental health (Schaefer, Coyne, & Lazarus, 1981). On a continuum of tie strength from weak to strong, all of the social ties were found to be useful and necessary for fulfilling the various social supportive actions a person seeks.

Relationships on online social networks are often studied by applying social capital frameworks. *Social capital* is defined as resources that can be mobilized by people for different types of support and are accrued through social interactions with a network (Gray et al., 2013; Greenhow, 2011). Based on *tie strength*, there are two types of social capital—*bridging capital* and *bonding capital*. First, *tie strength* is used to examine how different types of relationships impact an individual or organization. *Bridging capital* is made up of *weak ties*, mainly acquaintances, and provides individuals with new information or perspectives. These relationships are effective for making new connections and creating novel ideas. *Bonding capital* provides an individual with emotional support necessary for emotional and mental health and is composed of *strong ties*, or network members that are perceived as trustworthy or similar to him or her. However, the characteristic of similarity among strong ties may change, as Gilbert and Karahalio's (2009) study found that highly educated younger people living in metropolitan areas have more diverse systems of strong ties. The study also found that different types of relationships interact differently online. Weak ties tend to communicate only over a few media outlets, whereas strong ties access a multitude of communication channels. Therefore, determining relationship strengths based on analysis of communication conducted over one online social network is difficult and potentially inaccurate since close relationships are likely to interact over a number of different platforms and devices.

Examining how social capital is generated can help researchers understand user behavior and identify meaningful online social network interactions. Burke et al.'s (2012) study on general Facebook user behaviors found that while intensity of use is associated

with overall increased social capital, certain activities could also increase feelings of loneliness. First, there are two types of online communication that can occur in an online social network: *directed communication* and *consumption* (Burke et al., 2010; Oh, Ozkaya, & LaRose, 2014). Directed communication is any interaction between participants of a relationship. For example, posting messages on each other's Facebook wall posts or sending text messages in a private chat group are all forms of directed communication. Consumption is the act of monitoring content from non-targeted members in an online social network such as reading the newsfeed on Facebook or getting updates and alerts on friends' activities. Burke et al.'s (2010) study found that directed communication is associated with bonding capital and decreased feelings of loneliness, while consumption behavior is associated with increased feelings of loneliness. However, online social network activity in general may strengthen relationships as it lowers the communication barriers some experience in face-to-face interactions (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012).

Online Supportive Interactions

The existence of online social networks like Facebook has altered the "nature of friendship for the new generation of 'digital natives'" (Manago et al., 2012, p. 369). It has changed the way people develop and maintain online intimate relationships. While it is easy to develop a relationship, maintaining a connection cannot exist without active voluntary disclosure of personal information from all parties of the relationship (Hollenbaugh & Ferris, 2015). As a person's online social network grows larger and more complex, the amount of intimate and personal details he or she is comfortable

sharing with that network may also decrease. As a result, online interactions become less honest and relationships become more superficial.

Interaction, in general, is defined as a way of framing the relationship and activity that occurs between people and objects, spaces, messages, or systems (Dubberly, Pangaro, & Haque, 2009). While personal interpretation influences our perception of social support, the amount of positive affect generated from the interaction is what counts as perceived social support (Oh et al., 2014). In Oh et al.'s (2014) study on how online supportive interaction is associated with social support variables, they found that the frequency of interaction is not an indicator for perceived social support. Instead, “it is the quality of interaction that matters in establishing social support and psychological well-being” (Oh et al., 2014, p. 76).

In a study by Burke et al. (2010), researchers examined the effects of online social network use based on two types of interaction, directed communication and consumption. Using a survey to analyze the association between social well-being and Facebook use, Burke et al.'s (2010) study found that directed communication increases bonding social capital and decreases feelings of loneliness. Consumption was found to be negatively associated with bridging social capital and positively associated with feelings of loneliness. In other words, users who interact over Facebook messaging provided more emotional support in terms of assuaging feelings of loneliness. However, if people were simply using Facebook to keep track of activity of other people in their network, then feelings of loneliness will increase and levels of perceived social support will decrease.

In Manago et al.'s (2012) study on college students' Facebook networks, they found that the majority of connections are superficial relationships and less than 25% of

their network is made up of close contacts. In the networks that were analyzed, college students tend to use private messaging with those they shared a closer and more intimate relationship with for emotional support. Manago et al. (2012) also found that interactions over Facebook in general are between close relationships but more for demonstration of social skills. In studying how social support is enacted in an online environment, researchers need to identify different types and modes of online interactions.

A person's online supportive interactions can also be influenced by his or her culture. In a recent research on how international students use social media for social adjustment, the study found that while international students join Facebook to connect with people from different places, they are hesitant to seek online social support as they are unsure how their messages will be interpreted by people from a different background (Seo, Harn, Ebrahim, & Aldana, 2016). International students also tend to have newer and weaker ties with Facebook members, which may contribute to their resistance to disclose personal or emotional information. Therefore, cultural complexity can also significantly influence how a person engages in online supportive interactions.

Using Visual Content on Social Network Sites

From studying how digital visual display representations (i.e., layout, text size, color, texture, orientation, shape and value) have an effect on college students' emotions (Hsu, 2014) to how online visual propaganda is used in violent international conflicts (Seo, 2014), the role visual communication plays in online social networks is diverse. Consequently, it also illustrates the importance of understanding how visual communication operates in online social networks. Visuals are perceived as more personal and thoughtful, and able to convey complex messages more efficiently

(Malhotra, Malhotra, & See, 2013). Visuals are attention-grabbers and as a result, part of the marketing strategy for many organizations and businesses today is focused on delivering content with visuals in hopes that their messages will stand out from competitors and other online social network activity.

Like a painting or other visual piece of art, online visual content can have a significant impact on the viewer's emotions. Besides studying how organizations use visuals for audience engagement, other studies on use of visual imagery in online social networks are examining visuals from the perspective of social support in terms of nonverbal self-disclosures (Hum et al., 2011; Mesch & Beker, 2010). *Self-disclosure* is the act of communicating to others information of a personal nature either verbally or nonverbally (Hollenbaugh & Ferris, 2015) and "is required to establish trust and mutual understanding in interpersonal relationships" (Mesch & Beker, 2010, p. 571). Self-disclosures can help distressed individuals express experienced emotions and build interpersonal relationships, which in turn minimizes feelings of isolation and loneliness (Barak, Boniel-Nissim, & Suler, 2008).

Self-disclosure through art therapy, which is self-expression through nonverbal activities, has been found to decrease distress, improve quality of life, and promote coping resources for people experiencing serious medical conditions and distressing life events (Favara-Scacco, Smirne, Schilirò, & Di Cataldo, 2001; Medland, Howard-Ruben, & Whitaker, 2004). A study on how female cancer patients reacted to art therapy found that the method of intervention encouraged mindfulness and, in turn, decreased the symptoms of distress the cancer patient experienced (Monti et al., 2006). After eight weeks of art therapy, the study found statistically significant results in the decrease of

anxiety and distress symptoms and other negative behaviors like hostility, interpersonal sensitivity, obsessive-compulsive, and somatization. More importantly, the study's follow-up with the patients found that the effects of treatment remained eight weeks after the end of the intervention. In other words, creative self-expression promotes self-regulation, which can lead to an improvement in the quality of life for a distressed individual over a sustained amount of time.

Other studies have found that young adults use visual imagery on online social networks for validation of creative work and self-expression (Greenhow, 2011; Zhao, Grasmuck, & Martin, 2008). In a 2013 survey, over half (54%) of adult Internet users posted original visual content; "young adults ages 18-29 are particularly likely to post pictures they take online" (Duggan, 2013) and over 90% of teens shared photos of themselves on social media (Madden et al., 2013). Beyond this, research on the use of visuals in online social networks is still emerging. The first study conducted by the Pew Research Center on Pinterest, Instagram, and Tumblr user statistics was in 2012 (Rainie, Brenner, & Purcell, 2012) and Facebook introduced its video component only a few years ago (Instagram, 2013).

As technological devices become more advanced, the use of visuals like photos and videos will only become more prevalent and descriptive in peer-to-peer communication. At the time of this dissertation, online social network users can upload profile videos on Facebook, post live video feeds on Instagram, and send each other video messages on Snapchat. As a result of new and rapid changes in features offered by different online social networks, social norms regarding online identities are continuously evolving and modifying users' online behaviors in making visual disclosures.

Instagram

This dissertation examines visual communication on Instagram and one of the methodologies used is content analysis of public posts using the hashtag *#collegeproblems*. Since the launch of Instagram in 2010, the photo-sharing mobile application has grown into an online social network of more than 500 million members with an average of more than 95 million visuals—images and videos—shared daily as of 2017 (“About Us,” 2017). Although Facebook is still by far the most popular online social network among U.S. online adults, Instagram is the second-most-accessed online social network and was acquired by Facebook for \$1 billion in 2012 (Lee, Lee, Moon, & Sung, 2015).

Instagram is described as “a fun and quirky way to share your life with friends through a series of pictures.... to allow you to experience moments in your friends' lives through pictures as they happen” (“FAQ,” 2017). At the time of this dissertation, the application is no longer restricted to only photo sharing and users can post video clips and stream live videos. As of 2016, 59% of Instagram members were ages 18 to 29, and 38% of women and 26% of men on the Internet used the visual-focused social media site (Greenwood, Perrin, & Duggan, 2016). In addition, about 51% of Instagram members used the application daily with 35% accessing it multiple times a day. Members of Instagram primarily use it for social support motives (i.e., maintaining and developing relationships, reducing feelings of loneliness, and discovering similar others) as well as a means of self-expression (Lee et al., 2015).

According to Instagram’s report, one month after releasing the emoji keyboard on its platform, “10% of text on Instagram contained emoji” (Instagram Engineering, 2015).

The use of emojis on Instagram has continued to grow rapidly and, in 2015, the use of emojis in hashtags was introduced and about half of the messages on the online social network site now contains at least one emoji (Goodman, 2015). Given user demographics, social motives, and emoji use, Instagram is the most suitable online social network currently available for studying how undergraduate college students seek online support through the use of emojis.

Visual Language of Emojis

Visual Cues in Online Communication

One of the main struggles in online communication is the lack of visual cues (facial expressions and gestures) that are present in face-to-face situations. For example, when delivering advice in face-to-face situations, an advice giver might wink or use body language to suggest humor and ameliorate the face-threatening act. These communication subtleties are difficult to convey in online situations and incorrect interpretation of messages may lead to information miscommunication or, in more serious situations, unintentional offense. In 1982, a Carnegie Mellon University scientist posted what is credited as the first digital emoticon to an online bulletin board and the message read:

I propose that the following character sequence for joke markers:

: -)

Read it sideways. Actually, it is probably more economical to mark things that are

NOT jokes, given current trends. For this, use

: -(

The message was sent to colleagues and explained how the emoticons conveyed sentiment that was absent in plain text.

Emoticons, the combination of the words *emotion* and *icon*, are graphic indicators of emotional states and predecessors of emojis. In a study by Skovholt, Grønning, and Kankaanranta (2014), they found that emoticons were used as “markers of the sender’s facial expressions” (p. 791), to identify a joke or irony, and to “soften speech acts which are threatening to the recipient’s negative face” (p. 792). The study further determined that emoticons are used to provide contextual cues and are codependent on the corresponding utterances. Interpretation of an emoticon depends on the situation of the correspondence and, likewise, dissemination of the message can be modified by the associated emoticon(s) used. Emoticons can minimize face-threatening acts by “reducing the social distance” (Skovholt et al., 2014, p. 793) as well as to “lighten the mood of the message ... or to ameliorate what might be perceived as a negative message and to add nuance” (Kaye, Wall, & Malone, 2016, p. 465).

In face-to-face situations, a person can convey utterances with complex sentiments by incorporating facial expressions or gestures to demonstrate the humor or irony of the message. In online environments, these forms of utterances become difficult and sometimes dangerous to deliver because of the lack of visual cues. However, graphic representations like emojis and emoticons can help communicate these subtle and risky sentiments. In Thompson and Filik's (2016) study on communicating sarcasm with emoticons, they found that participants were “more likely to use emoticons to aid understanding in sarcastic comments than literal ones” (p. 112). In particular, the wink face (;)) and tongue face (:p) were used exclusively with sarcastic comments. Because emotions are difficult to explicitly express, emoticons can be effective at establishing the

tone or injecting a personality in online discourse when visual cues are absent (Kaye et al., 2016).

Like emoticons, emojis provide visual cues in online communication where facial expressions and gestures are absent. Emojis are defined as “a graphic symbol, ideogram, that represents not only facial expressions, but also concepts and ideas” (Novak, Smailović, Sluban, & Mozetič, 2015, p. 1). With emojis, people can address a wider variety of interaction motivations like sending a thumbs-up (👍) to indicate acknowledgement, a monkey face (🐵) to suggest playfulness, a heart (❤️) to show support, or a winking face (😉) to convey humor. Recent studies on how emojis are used have found that they can influence the sentiment of messages (Novak et al., 2015) and people use them mainly for relationship maintenance (Kelly & Watts, 2015; Sugiyama, 2015). However, there is relatively little research on how college students use emojis, emojis’ effects on students’ online visual language, and how emojis are used in supportive communication or social support interactions.

Problems with Emojis

In studying how emojis are used in communication, there are many possible sources of noise, from discrepancies in visual representations to different cultural interpretations. The vagueness causes miscommunication when the intention of the sender and the interpretation of the receiver are not consistent (Derks, Bos, et al., 2008). While the ambiguity of emojis might make them suitable for emotional communication (Horn, 1998), too much disparity in the display of emojis can still have an adverse influence on communication effectiveness. Therefore, the variation in the visual representation is another important aspect to consider when studying emojis. For

example, the *grinning face emoji* is displayed fairly consistently (😄 on Apple, 😄 on Google, and 😄 on Facebook) but the *grinning face with smiling eyes emoji* (😁 on Apple, 😁 on Google, and 😁 on Facebook) can be confused with the *grimacing face emoji*, which has more variation in its visual display across different operating systems and platforms (😬 on Apple, 😬 on Google, and 😬 on Facebook).

Emoji use has become deeply embedded in today's culture and can be used in private messaging, social media interactions, or even as a hashtag on platforms like Twitter and Instagram. Since the debut of the first emojis in 2010, there is now a Unicode consortium for emojis development, an emojiopedia, and customizable emoji apps. When Kurita created emojis around 2010, he turned to manga, his childhood experiences, and Kanji (Japanese text) for inspiration (Lucas, 2016). Part of that original set of emojis is the *pile of poo emoji* (💩), which is based on 1980s Japanese pop culture and used to symbolize messages in a fun or funny context (Schwartzberg, 2014). However, emoji as a visual language, like other languages, is not universal and may vary from culture to culture, or even within a community. Beyond the Japanese community, the *pile of poo emoji* could be easily interpreted as offensive and rude. As a result, the team at Google redesigned the emoji with animation to emphasize its playful context and introduced it to American users as a hidden feature.

Development of the Emoji Visual Language

Contrary to popular misconception, visual language is not just graphics. Instead, visual language is used to convey complex ideas by integrating “words, images, and shapes into a single communication unit” (Horn, 1998, p. 8). In today's online communication, visual language can be a combination of text, emoticons, emojis,

stickers, GIFs, photos, etc. Since emojis are derived from Japanese culture, one cannot assume that meanings associated with emojis in Japan are the same for college students in the United States. For example, the *sleepy face emoji* (😴) is often misunderstood by Westerners to be a crying emoji because the droplet, which denotes a snot bubble in Japanese anime culture, is interpreted to be a teardrop in other Western (Lucas, 2016).

The development of a visual language relies on agreement between the members of the culture of the language. If participants share conceptual language models but are hindered by display inconsistencies, like variations in representations of an emoji on different devices, it would add confusion to the development of the visual language. Therefore, to understand how the visual language of emojis develops in college students' online communication, it is critical to study the basic units to the visual language.

A recent study by (Cohn & Ehly, 2016) examined visual language morphology of manga, Japanese comics, by identifying morphemes, “units of form-meaning pairs in the graphic system” (p. 20). Visual morphemes, or “pictorial runes” make up the visual vocabulary of a visual language (Cohn & Ehly, 2016, p. 18). Cohn and Ehly’s study identified and analyzed 73 visual morphemes in popular manga series from Japan and found that while certain genres have unique ways of using visual morphemes, the meanings for it remains largely the same. In the example with the *sleepy face emoji*, the droplet, referred to as a morpheme, around the mouth suggests boredom. Although the placement and shape of the droplet morpheme on the *sleepy face emoji* is different between Apple (😴) and Google (🙄), both of the renderings still suggests slumber. As the analysis of any language begins at the *morphology* level, the study of the visual language of emojis should begin at a study of the basic visual morphemes.

Empathy in College

Empathy Development

Visual cues in human interactions not only maintain awareness and engagement, they can also suggest emotional support and empathy. Empathy is defined as experiencing and understanding an emotional state triggered by another's emotional state, which may lead to shared feelings and comforting behaviors (Carrier et al., 2015; Hoffman, 2008). It is generally experienced by an empathetic person as a response to the distressful situation of another or others. It can be automatic affective responses without the occurrence of language, or a cognitive response communicated through language (Hoffman, 2008).

Empathy is a skill, and as it develops, people learn appropriate supportive behaviors to alleviate the stressful conditions experienced by others. According to Hoffman (2008), empathy is observed in newborns as mimicry behavior where an infant instinctively assimilates his or her facial expression, voice tone, and body language to mimic what the distressed person is displaying. Feelings within the empathetic individual are activated based on associations made between muscle movements and neural patterns. When babies hear another baby's distressed cry, they would likely start crying because the distress is also not perceived as something occurring beyond their physical self. Later on, when empathy fully matures, it becomes a metacognitive process where people are aware that the feelings they experience are responses to another person's emotional situation. At the highest level and final stage of empathy development, individuals are able to generalize and project empathy beyond an individual and apply his or her empathy to distressed groups. These empathetic individuals might be motivated to

provide tangible assistance like donating goods to communities recovering from a natural disaster or organize protests and rallies to demonstrate support for oppressed populations.

College Adjustment and Empathy

The time period immediately following high school can be particularly difficult because not only are individuals transitioning from adolescence to young adulthood, their social network experiences major disruptions as friends move away for college and they must reorganize the network they had once been familiar with. This time period is considered a major “turning point” for many young adults and can have substantial influence on psychological health (Gotlib & Wheaton, 1997) as they seek to identify their purpose in life (Hill, Burrow, & Sumner, 2013). Besides major social network changes, many students must adapt to new academic standards and living situations that may cause immense stress and feelings of loneliness. Ensuring that students are receiving effective social support, is crucial as it can help alleviate anxiety by providing resources, improve feelings of loneliness by providing companionship, and ensure well-being by providing social needs (Cutrona, 1996). Therefore, the ability to attain social support through demonstrations of empathy by others can be a critical factor in helping college students adjust.

For college students, social support needs range from informational support (i.e., searching for supplemental academic materials) to emotional support (i.e., seeking an empathetic ear to listen and acknowledge their distress). With the technological advancements and growing use of online social networks, members have more opportunities to receive social support by gaining access to readily available information online as well as virtual empathy. Not only can virtual empathy encourage students to

disclose their stress, it also provides opportunities for encouragement and validation, which helps mitigate any feelings of isolation.

Another adjustment during the early college years is that students are developmentally tasked with “learning how to maintain close, intimate relationships” (Manago et al., 2012, p. 370). Intimacy results from successfully developing close relationships and the ability to empathize with others helps college students relate to their peers and other people (Vossen & Valkenburg, 2016). Although online social networks can help develop and maintain relationships, there is a growing concern that social media use is the cause of the decline of empathy found among young adults due to online disinhibition effects (Karl, Peluchette, & Schlaegel, 2010; Kokkinos, Baltzidis, & Xynogala, 2016; McDonald, 2016).

One of the advantages to online interactions is that the affordances of anonymity and invisibility encourage more uninhibited self-disclosure (Barak, Boniel-Nissim, & Suler, 2008). However, this online disinhibition effect can also have a negative impact on effective supportive communication, from the lack of interpersonal intimacy to increased susceptibility to negative interactions. The online disinhibition effect is defined as either benign or toxic disinhibition in online interpersonal interactions resulting from the affordances of the digital environment (Suler, 2004; Barak et al., 2008). Benign disinhibition is when people share more personal or emotional information and support because conditions of the digital environment, like anonymity and invisibility, allow them to “loosen up, feel less restrained, and express themselves more openly” (Suler, 2004). Toxic disinhibition is when people use language or consume content they normally would not practice in the real world. Given the online disinhibition effect,

studies analyzing online social network user behaviors should be careful in generalizing findings to apply in real-world contexts (Terry & Cain, 2016). While a person might not be hostile or critical in-person and have no perceivable character flaws, he or she could be equally guilty of cyberbullying or flaming.

Although research on virtual empathy is fairly new, recent studies on cyberbullying among adolescents have found that higher levels of empathy demonstrated online is correlated with lower incidences of toxic disinhibition (Cao & Lin, 2015; Vossen & Valkenburg, 2016). Recent studies have found that social media platforms encourage prosocial behaviors by connecting individuals sharing similar experiences and providing them with a digital environment to exchange emotional support (Gray, Vitak, Easton, & Ellison, 2013; Manago, Taylor, & Greenfield, 2012). However, due to the lack of visual cues, there is less empathy in online communication than face-to-face communication (Carrier et al., 2015). Virtual empathy, or digital empathy, is defined as the “traditional empathic characteristics such as concern and caring for others expressed through computer-mediated communications” (Terry & Cain, 2016, p. 1). Since empathy is dependent on nonverbal cues for emotion recognition, it is negatively impacted by the lack of visual cues in the online space. However, as technology continues to evolve and the visual representation of emojis becomes more consistent, the opportunities for interactions that generate virtual empathy can only continue to expand.

Summary and Research Questions

Because it has been less than 10 years since Kurita created the first emojis for Japanese Internet users, academic studies pertaining to emojis are just beginning to emerge. Since emojis are mainly used for relational maintenance purposes, as well as for

self-image construction, it will be interesting and valuable to see how people use emojis in different types of communication, relationships, and social support situations.

This dissertation is aimed at examining how emojis are used by college students to communicate social support. Not only do college students have to make new connections and maintain old relationships, they must also learn how to maintain intimacy in close relationships (Manago et al., 2012). Intimacy results from successfully developing close relationships through disclosures and exchange of social support (Hartup, 1992), which is positively associated with psychological well-being (Galambos, Barker, & Krahn, 2006). By providing students with effective social support, colleges can minimize negative feelings like loneliness, depression, and anxiety from becoming detrimental during this transition period. This is also beneficial for colleges and universities as they can begin addressing methods to improve student retention rates.

It is vital for colleges to understand the social support needs of students because recent statistics show that one-third of college freshmen are unable to access the social support they need to transition effectively and so they do not withdraw from school after the first year (“Freshman Retention Rate,” 2015). Online social networks can be beneficial in helping college students’ transition and adjustment to campus life due to the variety of social support these networks can provide. One approach to understanding how colleges can use online social networks like Facebook or Instagram in a supportive manner is to examine the existing communication and relationships of these applications.

Based on the previous studies and recent developments in college students’ use of social media in supportive communication discussed above, this dissertation asks the following research questions.

RQ1) How are emojis used by college students for supportive communication?

RQ1a) How are emojis associated with different types of social support messages?

RQ1b) How are emojis associated with different types of facework strategies?

RQ1c) How are emojis associated with different topics discussed under the hashtag *#collegeproblems*?

RQ2) How does virtual empathy affect online interactions? Specifically, how do emojis in a caption or post influence message(s) responding to it?

RQ3) How are visual characteristics of emojis associated with how it is used?

RQ3a) How are differences in the visual representation of emojis across different platforms associated with how it is used?

RQ3b) How does the sentiment of emojis associate with how it is used?

RQ4) How does the use of emojis differ between weak and strong ties in online communication?

Research questions one through three will be primarily studied by content analysis and focus group research will help better interpret the findings. Research question four will be examined through focus group research.

CHAPTER III

METHODOLOGY

To investigate how college students use emojis for communicating social support, this dissertation applied two methodologies: first, a content analysis of Instagram posts and another content analysis on the visual representations of emojis; second, focus groups with college students who have Instagram accounts. The first-phase content analysis was conducted to explore how emojis are being used in communication about stressful college situations over social network sites like Instagram. The second phase of the content analysis examined the influences visual representation of emojis have on communication effectiveness by studying visual morpheme differences. Focus groups were employed to understand how undergraduate college students, enrolled in a large public university in the Midwest, use and interpret emojis in supportive communication. Focus group sessions also served to provide a better understanding of observations and questions made while conducting content analysis. The following sections discuss each phase of research in greater details.

Content Analysis Phase 1: Instagram Posts with *#Collegeproblems*

Emojis are a new phenomenon and found in various scenarios used by a variety of users. Due to the range of interpretations and situations surrounding the use of emojis, quantitative content analysis is applied to study emojis in a situational framework. For this dissertation, the situational framework is studying how emojis are currently used for online communications surrounding stressful college situations. While some of the shortcomings of applying content analysis are potential issues with validity and reliability, it is a commonly applied method for investigating social science questions

about recorded human communications (Babbie, 2007). Therefore, this method is suitable for developing an investigative framework towards understanding how emojis are currently being used by examining the captions and comments posted on Instagram.

Data Collection and Sampling. This dissertation gathered data on publicly available Instagram entries with the hashtag #collegeproblems. A recent report found that over half of the captions and comments on Instagram use at least one emoji (Goodman, 2015), which was a determining factor for selecting the platform for phase one of the content analysis. The study collected and analyzed Instagram captions and comments for one year from November 1, 2015 to October 31, 2016. When the data were retrieved in November 2016, Instagram entries including the hashtag #collegeproblems averaged about six new entries per day. The hashtag was chosen because most of the #collegeproblems entries were related to issues associated with college adjustment—such as academic challenges, homesickness, long-distance relationships, and financial problems. In the following example of an Instagram entry with the hashtag #collegeproblems, the author of the entry discusses academic challenges in the caption.

Genetic code
CODON: group of 3 nucleotides
 Each codon codes for a particular amino acid
 (monomer of proteins)

		Second position			
		U	C	A	G
U	UUU	Phe	UCU	UUA	Tyr
	UUC	Phe	UCC	UAC	Tyr
	UUA	Leu	UCA	UAA	Stop
	UUG	Leu	UCG	UAG	Stop
C	CUU	Leu	CCU	CAU	His
	CUC	Leu	CCC	CAC	His
	CUA	Leu	CCA	CAA	Gln
	CUG	Leu	CCG	CAG	Gln
A	AUU	Met	ACU	AAU	Asn
	AUC	Met	ACC	AAC	Asn
	AUA	Met	ACA	AAA	Lys
	AUG	Met	ACG	AAG	Lys
G	GUU	Val	GCU	GAU	Asp
	GUC	Val	GCC	GAC	Asp
	GUA	Val	GCA	GAA	Glu
	GUG	Val	GCG	GAG	Glu

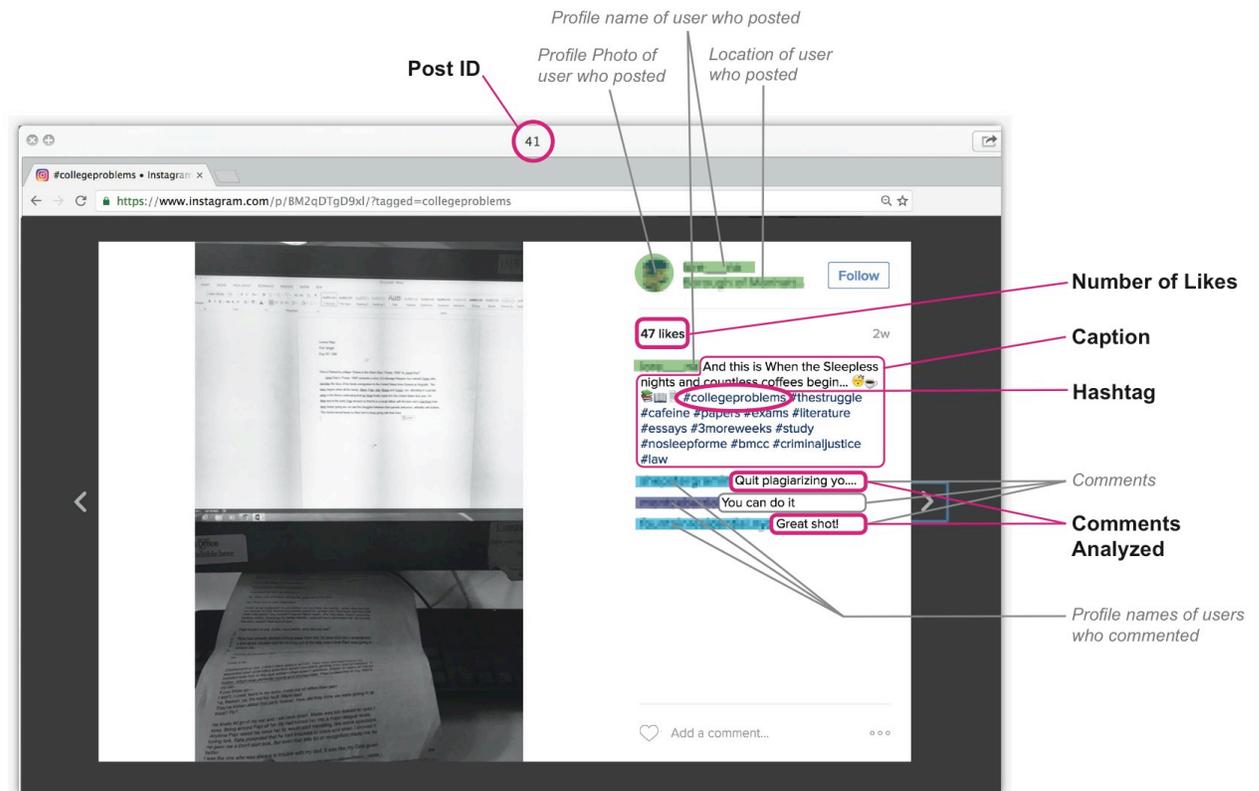
Stop codons (circled in red): UAA, UAG, UGA

Handwritten notes: '3' next to the stop codons, 'Stop codons' written vertically.

Instagram Post:
 User: j_caballes
 Caption: Taking notes and not understanding any of... #collegeproblems
 Comment: gale_west I like your hashtag college problems. I have them too with this math class I'm taking. Hang in there!

Each Instagram post, considering both the caption to an entry and the comments in response to the entry, is the unit of analysis. Due to the volume of captions and comments, the study applied systematic random sampling by coding one out of every five entries and every other comment to each selected entry. For example, out of ten entries tagged with *#collegeproblems*, the captions to two entries and every other comment following each of those two entries were coded (see Figure 1). This sampling resulted in a total of 448 Instagram entries. After excluding video posts from the study, because videos were not screen captured and archived, a total of 426 captions and 753 comments were analyzed for this study.

Figure 1. Diagram of components to an Instagram entry.



Coding Scheme. In analyzing the data, there are two types of content to be coded: manifest and latent. Manifest content is the visible content and oftentimes calculated by simply counting the frequency of an indicator. For this research, manifest content for each caption and comment included the number of likes and number of comments of the associated post. For example, in Figure 1, there are 47 likes and 3 comments.

The type of emojis found in each post, caption or comment, were also coded. Categories used to identify type of emojis were defined according to categories found on Emojipedia.com. The first category, *smileys and people*, contained emojis illustrating anthropomorphic characteristic such as expressional faces (😊 , 😌 , 😡), caricatures (🧑 , 🚔 , 🏃), hand gestures (👉 , 👍 , 🙌), and drawings of other human features (👂 , 👁 , 👄). The second category identified by Emojipedia.com, *animals* (🐶 , 🐝 , 🐙) and *nature* (🌸 , 🌲 , 🌊), also consisted of elements related to the weather (❄️ , 🌀 , ⚡) and the solar system (⭐ , 🌍 , 🌙). The third category consisted of *food* (🍍 , 🍕 , 🍬) and *drinks* (☕ , 🍺 , 🥛), which also included dining utensils (🍴 , 🍴 , 🍴). The fourth category called *activity* composed of elements found in sports (⚾️ , 🏸 , 🏊), music (🎵 , 🎸 , 🎤), art (🎨 , 🎨), and other forms of entertainment (🎮 , 🎫 , 🎫). *Travel and places* was the fifth category and contained images of buildings (🏠 , 🏢 , 🏙), modes of transportation (✈️ , 🚢 , 🚂), and cultural landmarks (🗽 , 🗿 , 🗿). The sixth category called *objects* consisted of household fixtures (🛏 , 💡 , 🚰), technology (📺 , 📷 , 💻), and other everyday items (✂️ , 📖 , 🎁). The *symbols* category consisted of hearts (❤️ , 💕 , 💙), signs (🚶 , 🚫 , ♿), religious and astrological figures (🌀 , ♀ , 🕯), and expression marks (🤪 , ❗ , 🎯). The eighth

and final category was *flags* and included flags for countries and organizations (🇺🇸 , 🇪🇺) as well as flags used in other situations like races (🏁), negotiations (🇵🇸), and political movements (🏳️), just to list a few. This dissertation only accounted for *smileys and people, animals and nature, food and drinks, symbols, and others* because emojis from the other categories were not found in Instagram posts using *#collegeproblems*.

Emojis were also analyzed in terms of positive, negative, or neutral sentiment according to the Emoji Sentiment Ranking (http://kt.ijs.si/data/Emoji_sentiment_ranking) developed by Novak, Smailović, Sluban, and Mozetič (2015). *Sentiment* is defined as “an attitude, thought, or judgment prompted by feeling” (“Sentiment,” 2017). *Sentiment analysis* is the field of study that measures people’s opinions, attitudes, and emotions by assessing recorded communication’s linguistic characteristics often gathered through web or data mining (Kennedy, 2012). In terms of understanding social media activities, sentiment analysis is often used for reputation assessment of brands and monitoring of social crisis for developing and improving communication strategies (Gaspar, Pedro, Panagiotopoulos, & Seibt, 2016). However, sentiment analysis can also be used to identify key patterns and trends. The Emoji Sentiment Ranking in Novak et al's (2015) study assigns each emoji a sentiment score in a range (-1, +1). For example, a caption reads:

A screenshot of an Instagram post caption. The text is displayed in a white box with a thin grey border. The text reads: "josiefarrell When you stop caring about your responsibilities and can finally get back to being yourself 🎉🎉 #collegeproblems". The hashtag "#collegeproblems" is in blue, and the emojis are colorful party poppers.

josiefarrell When you stop caring about your responsibilities and can finally get back to being yourself 🎉🎉 #collegeproblems

The sentiment of emojis for the above post was coded as positive because the party popper emoji (🎉) has a sentiment score of .738. Since the sentiments of posts with and without emojis were significantly different in the Novak et al. (2015) study, this dissertation also analyzed text and emojis separately in terms of positive, negative, or neutral sentiment.

To understand what topics of distress are most frequently communicated by college students, this dissertation adopted the topics developed in the Everyday Stress Survey (Burks & Martin, 1985; Gruttadaro & Crudo, 2012). The categories from the Everyday Stress Survey are (i) *schoolwork*, (ii) *employment*, (iii) *finances*, (iv) *family*, (v) *living situation*, (vi) *romantic relationships*, and (vii) *social relationships*. Schoolwork messages are about issues related to course performance or homework problems, while employment messages discuss job-hunting efforts or difficult working situations. Messages about finances are concerned with struggles in obtaining funding for school, incurring debt, or other types of money problems. Messages about family dealt with familial relationships or situations, and messages about living situation refer to homesickness or dissatisfaction with current housing. Romantic relationship messages often talk about significant others or dating situations. Social relationship messages are concerned with making friends or membership in social groups.

Three new categories were created based on the number of entries that could not be coded within the categories introduced in the Everyday Stress Survey. These categories were self-expression, physical health, and mental health. Self-expression messages were often about physical appearances or creative activities. Physical health messages were mostly concerned with topics like sleep, food, and exercise. Mental health

messages oftentimes discussed stress, anxiety, and depression. The study coded for the primary topic of the message.

Latent content is concerned with the context of the message and relies on well-developed definitions and conditions. Applying social support typology used to study online support groups (Mo & Coulson, 2008), comments were coded according to (i) *emotional support*, (ii) *informational support*, (iii) *esteem support*, (iv) *network support*, and (v) *tangible support*. This typology can be applied to examine whether different types of emojis are associated with different types of social support. Emotional support responses convey affection, concern, or empathy. Informational support consists of suggestions, referrals, or facts. Esteem support responses communicates agreement, confidence, or validation. The network support category provides companionship or connections, and tangible assistance offers goods or services. The following response posts are examples of different types of social support.

Emotional support example:

auuubbbsss Aye I miss you 🥺💕

Informational support example:

cbdublu My bookstore does price matching. If amazon or Barnes and noble or chegg sells/rents it cheaper, they will match it.

Esteem support example:

woocommerce_russian.ru Well done

Network support example:

realtonyrose If you ever need any help with these txst professors let me know I know a lot real well @tiennxo

Tangible assistance example:

Ifg35c Let me know if you need help with the fruit tickets 🤙

Although a message might be supportive, it does not necessarily mean it is helpful. In providing support, the support provider can try to provide empathy or offer advice. While advice might provide new perspective or information to the support recipient, it can also risk damaging his or her “face,” or self-image. Applying politeness theory, responses were coded according to Goldsmith's (1994) five types of facework strategies: (i) *bald on record*, (ii) *redress for positive face*, (iii) *redress for negative face*, (iv) *off-the-record*, and (v) *not provide advice*. *Bald-on-record* is straight-forward delivery of advice. *Redress for positive face* responses reaffirm a person's desire to be liked and accepted while giving advice. *Redress for negative face* offers advice but also emphasizes a person's freedom to not heed the advice. *Off-the-record* provides advice

through indirect language. The following response posts are examples of different types of facework strategies.

Bald on record example:

nubilusphoenix Get a better job

Redress for positive face example:

thedaniellealexandra Way to go girl! Get some sleep!!!

Redress for negative face example:

realtonyrose If you ever need any help with these txst professors let me know I know a lot real well @tiennxo

Off-the-record example:

cbdublu My bookstore does price matching. If amazon or Barnes and noble or chegg sells/rents it cheaper, they will match it.

Since there is a lack of visual and verbal cues in online communication, it would be interesting to examine whether the sentiment or type of emojis is associated with different facework strategy. This phase of content analysis helps answer research questions one and two.

Intercoder Reliability. An intercoder reliability test was conducted on the recommended sample amount of 15% of the entire study, 67 Instagram posts with a total of 67 captions and 110 comments, to ensure coding schemes were developed appropriately (Riffe, Lacy, & Fico, 2014). The study used two coders who have prior experiences in content analysis in the field of communication. The coders were given the codebook for this research and were trained about the specific coding schemes while test-coding 10 posts each. After both coders completed analyzing all the Instagram entries selected for the intercoder reliability test, Scott's *pi* reliability scores were calculated with the web-based calculator ReCal (Freelon, 2010). Perfect agreement ($\pi = 1$) was found for number of likes, number of comments, and identifying the number of each type of emojis (*smileys and people, animals and nature, food and drinks, symbols, and others*). Scores for primary topic in caption ($\pi = .98$) and primary social support ($\pi = .93$) in comment were both greater than .90, so was identifying sentiment of post ($\pi = .93$), sentiment of text ($\pi = .96$), and sentiment of emojis ($\pi = .94$). Scores for the other categories—secondary social support in comment ($\pi = .76$), advice strategy ($\pi = .87$), and identifying number of each sentiment type of emojis (positive ($\pi = .94$), negative ($\pi = .83$), neutral ($\pi = .82$))—were all acceptable. The complete codebook for this content analysis of is shown in Appendix A.

Content Analysis Phase 2: Emoji Representations

The second part of this dissertation is to investigate whether and how the differences in visual representations of emojis, between different operating systems and platforms, are associated with how emojis are used. To understand this, a content analysis of the visual characteristics of the expressional emojis in Emojipedia's *smileys and*

people category was conducted. While content analysis is often applied to “study recorded human communications” (Babbie, 2007, p. 320), it can also be used to study differences in representations (Hesse-Biber & Leavy, 2011). Since there is a gap in research on studying the visual representation of emojis across different platforms and devices, content analysis is an appropriate method for establishing a starting framework.

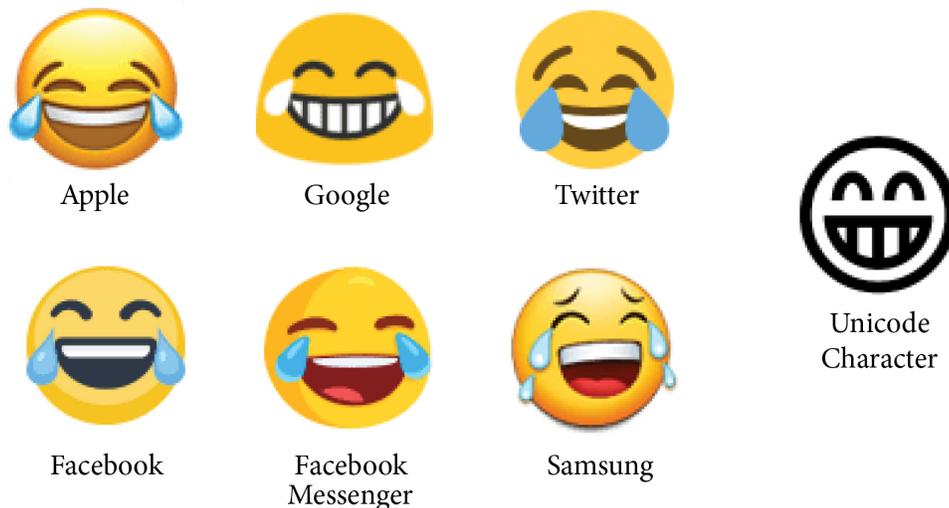
Data Collection and Sampling. At the time of this study, the set of emojis in use is regulated by Unicode® Emoji Charts v4.0. Emojis with emotional expressions rendered by Apple, Google, Twitter, Facebook, Facebook Messenger, and Samsung were collected from Unicode’s website, <http://www.unicode.org/emoji/charts/full-emoji-list.html>. This part of the study was only interested in studying the visual representations of smileys, or expressional emojis. A total of 76 smileys are part of Unicode Emoji 4.0 and all of them were analyzed by examining different visual morphemes.

Coding Scheme. Common visual morphemes of emojis—such as eyes, mouth, teeth, droplet, tongue, and eyebrows—were analyzed by examining the degree of differences between the same emoji. For example, in the case of *face with tears of joy emoji*, the visual morpheme for the shape of the mouth is the same for all representations (see Figure 2). However, there are two major types of visual morpheme for the eye. In the rendering by Apple and Facebook Messenger, the eye is fairly straight while the depiction by Google, Twitter, Facebook, and Samsung are more prominently curved. Visual morphemes for tongue and eyebrows are also different as some platform representations have these features while others do not. Emoji representation differences are greater in visual morphemes for teeth and tears. Samsung’s visual has four tear drops, Google’s teardrops are completely white and are contained to the face region, and there is

also variability in the placement of the teardrops. Other manifest information about the emoji gathered were the year the emoji was added to Unicode and its sentiment score according to the Emoji Sentiment Ranking.

Intercoder Reliability. To ensure the coding schemes were developed appropriately, an inter-coder reliability test was conducted on 20 randomly chosen emojis, or 15% of the study, which is the recommended sample amount for research methods (Riffe, Lacy, & Fico, 2014). Both coders coded the number of differences for each visual morpheme to each emoji and intercoder reliability was determined using Scott's π . The coders first coded five emojis for a comparison and discussion to identify parts of the coding schemes that needed more clarification. After coders completed coding all entries, the web-based calculator ReCal was used to determine Scott's π reliability scores (Freelon, 2010). Perfect agreement was found for determining differences in visual morphemes for *eyebrows* ($\pi = 1$) and *teeth* ($\pi = 1$), and scores for determining differences in *eyes* ($\pi = .72$), *mouth* ($\pi = .93$), *tongue* ($\pi = .92$), and other

Figure 2. Visuals representations of the *face with tears of joy* emoji.



visual morphemes ($\pi = .72$) were all greater than .7, which is considered as an acceptable score for exploratory research (Lombard, Snyder-Duch, & Bracken, 2002). The complete codebook developed for the content analysis of emoji representations is shown in Appendix B.

Focus Group Research

One of the challenges in studying social support is the effect of individual differences in appraising social support behavior. Social support is often studied through survey research by focusing on a situation and asking participants to answer questions measuring perceived and received support surrounding an event or experience (Hobfoll, 2009). However, this is not the most comprehensive way to measure support availability because studying a snapshot in time cannot provide understanding to the person's support network, history, or disposition. To truly understand the scope of social support, the individual's subjectivity and social support experiences—from enacted supportive behavior to perceived social support—should be investigated. Therefore, focus groups were conducted with undergraduate students enrolled at a large public university in the Midwest to understand experiences in using emojis to communicate with peers and how emojis are perceived in personal communication conveying support.

Besides studying how emojis are used for social support, this dissertation is also interested in understanding how virtual empathy can be expressed. The study of emotional expression has many new and interesting perspectives, and the long-established Darwinian perspective identified six categories of expressions: happiness, sadness, surprise, fear, disgust, and anger (Cornelius, 1996). While a limited span of emotional expressions might be universal, visual language in general is not and may vary

within a culture as well as contain visual dialects (Cohn & Ehly, 2016). Focus groups can be an effective method for collecting information on attitudes and opinions (Krueger & Casey, 2009) and gaining insight into “processes that otherwise remain hidden and are difficult to penetrate” (Barbour, 2008, p. 26). In the case of this study, focus groups can provide insight into the different emotional interpretations of expressional emojis. The dynamic and interactive nature of focus groups also “allow participants to socially construct their views” (Daymon & Holloway, 2011, p. 242) and can further the discussion of how college students use and express emotions in online communication.

Focus Group Participants. Since visual language is dependent upon culture (Hall, 1977), students from different cultures may interpret visual icons differently. Therefore, focus groups were conducted only with U.S. students who had active Instagram accounts. Recruitment messages were distributed via email and social media channels of student organizations at the university. Following common research practice for focus groups, a total of five focus groups were conducted, with five to seven participants per group (Krueger & Casey, 2009), with a grand total of 29 participants.

Each focus group started by asking participants to provide a short introduction of themselves. Of the total participants, there were 2 freshmen, 11 sophomores, 14 juniors, and 2 seniors. Most of the students graduated from high schools in the Midwest (Kansas, Nebraska, Minnesota, Illinois, Missouri, and Iowa) and only one participant graduated from a California high school.

Focus Group Protocol. Since focus group research involves interactions with participants, the focus group protocol was reviewed and approved by the Institutional Review Board of the author’s university. The same focus group questioning route was

used for all the focus groups. After opening questions about their basic demographics, students were asked to share which social network sites they used. Participants were then asked to discuss their favorite social network sites to use and reasons they prefer it to others. After these opening and transition questions, the focus group session dealt with key questions, including how they used Instagram and emojis on Instagram.

The first key question of the focus group sessions asked participants to identify emojis they used most frequently by drawing out the icons or selecting them from a deck of 20 expressional emojis (for deck of emojis, see Figure 3). These 20 emojis were selected because they are the most frequently used expressional emojis (Goodman, 2015) for different levels of sentiment (Novak et al., 2015).

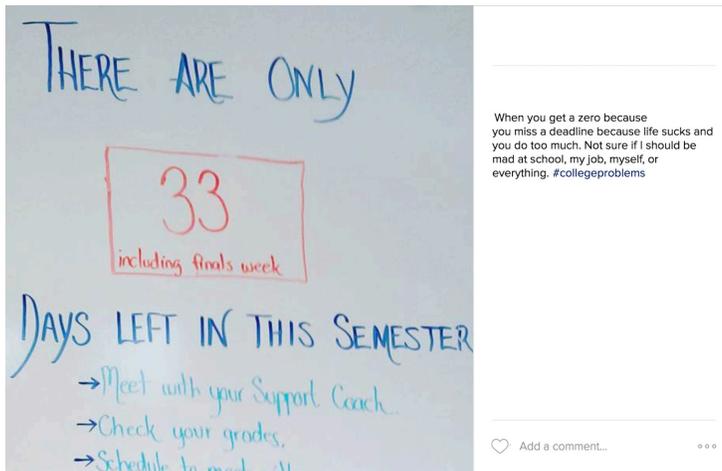
Figure 3. Expressional emojis used in focus groups.



The second key question used a card sorting activity where each participant was asked to arrange the deck of 20 emojis from positive to negative sentiment. Card sorting is best used for understanding “how users organize information and concepts” (Cooper, Reimann, & Cronin, 2007, p. 72). Photos of the sorted emojis were taken and participants were asked to share their thought process and how often they used the given emojis in online communication.

For key question number three, participants were given the following scenario provided with the attached visual:

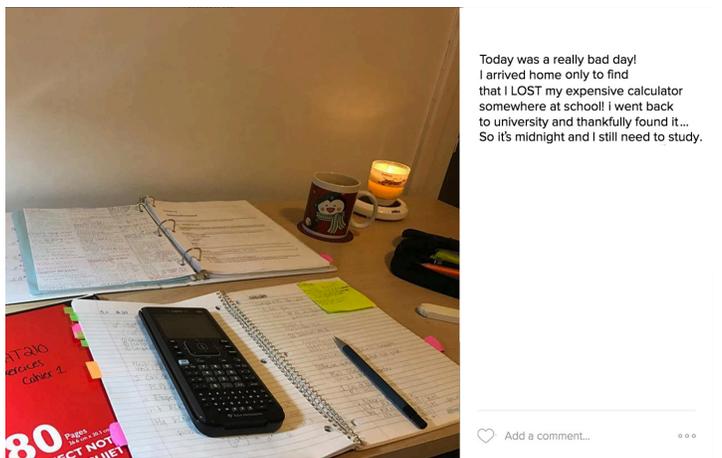
Imagine you see this post from a close friend on Instagram: “When you get a zero because you miss a deadline because life sucks and you do too much.” Write out your answer and indicate which emojis you would most likely use.



Participants wrote down and discussed what their response would be to the scenario.

For the final key question, participants were asked to perform one more card sort to the following scenario:

Imagine you posted the following photo and caption to Instagram: “Today was a really bad day! I LOST my expensive calculator and I still need to study.” A close friend responds with one of the emojis in the deck. Sort the deck of emojis from most empathetic response to least empathetic response.



Once again, photos of the finished card sort were taken for analysis later.

Focus Group Pretest. Prior to conducting the focus group sessions, two pretests were conducted. The first pretest was conducted with a group of graduate students to identify areas of improvement with regard to the focus group protocol. Based on the feedback from the first pretest, instructions for the key questions were revised to improve the protocol. A second pretest was conducted with a group of undergraduate students who were not part of the primary focus group research. These pretests helped check for understanding of the questions and minimize confusion during delivery of the different focus group activities. The final focus group protocol is included in Appendix C.

Focus Group Analysis. Each focus group session was audio recorded using the app SmartRecorder installed on a Google Pixel 1.0 cellphone. A professional hired from Upwork.com transcribed the recordings and a total of 48 single-spaced transcript pages were analyzed. Complete transcripts were then combined with the researcher's field notes for analysis using a constant comparative framework to "identify patterns in the data and discover relationships between ideas or concepts" (Krueger & Casey, 2009, p. 125). Results from the analyses are discussed in the following chapters.

CHAPTER 4

RESULTS

This section discusses results of two phases of content analysis as well as focus groups with college students. The first phase of content analysis entailed examining Instagram posts with the hashtag *#collegeproblems*. The primary goal of this content analysis was to answer the first and second research questions (RQ1 and RQ2) examining how college students are currently using emojis for supportive communication in online social networks. A total of 428 captions and 752 comments were randomly sampled, archived, and analyzed for this study. Specific sampling methods were described in the Methods section.

The second phase of content analysis was to examine the visual representations of emojis. A total of 76 smileys' renderings by major operating systems and applications—Apple, Google, Twitter, Facebook, Facebook Messenger, Samsung, and Windows—were archived and analyzed according to common visual morphemes. This phase of content analysis answered the third research question (RQ3) about how visual representations of emojis are associated with their use.

In addition, this dissertation conducted focus groups with college students at a large public university in the Midwest to understand the attitudes and opinions about using emojis in online communication. A total of five focus groups were conducted over a one-week period, with a total of 29 participants. The focus group study helped answer the final research question (RQ4) regarding how the use of emojis is differs between different types of relationships in college students' online communication.

Content Analysis: Phase 1

A total of 1,180 posts, 428 captions and 752 comments from publicly available Instagram entries with the hashtag *#collegeproblems* were analyzed for a one-year period from November 1, 2015, to October 31, 2016. Topics of stress disclosed in the captions, types of social support communicated in the comments, and the types and sentiment of emojis used were coded and analyzed.

Descriptive Statistics

As discussed in the previous chapter on methodology, the categories for topics of stress were based on the Everyday Stress Survey: (i) *schoolwork*, (ii) *employment*, (iii) *finances*, (iv) *family*, (v) *living situation*, (vi) *romantic relationships*, and (vii) *social relationships* (Burks & Martin, 1985; Gruttadaro & Crudo, 2012). A preliminary analysis of Instagram entries including *#collegeproblems* showed frequent mentions of issues related to self-expression, physical health, and mental health. Since Everyday Stress Survey does not cover the three topics, they were added to this dissertation's codebook (see Appendix A). The most frequently mentioned topic in the 428 Instagram posts analyzed was *schoolwork* (57%). The second most frequently occurring topic was *self-expression* (14%), followed by *physical health* (9%) and *mental health* (4%). The proportions of the other topics—employment, finances, family, living situation, romantic relationships, and social relationships—were between 0.9% and 3.5%. Messages that didn't include any of the identified topics were coded into the *other* category, which amounted to about 4% of the analyzed content.

The types of social support Instagram members responded with in the comment section was also analyzed. For this aspect, both primary (most significant) and secondary

(second-most significant) types of social support were examined. The most frequently appearing primary type of social support comment in the 752 comments analyzed was *esteem support* (77%), followed by *emotional support* (11%), *informational support* (6%), and *network support* (5%). Most of the comments (81%) did not contain a secondary type of social support and *tangible assistance* was not found either in the primary or secondary form of social support in the comments analyzed.

The type of emojis found in each post were adopted from categories identified by Emojipedia.com. The categories used to code for emojis were (i) *smileys and people*, (ii) *animals and nature*, (iii) *food and drinks*, (iv) *symbols*, and (v) *other*. Forty-two percent of the analyzed posts contained one or more emojis. Of the posts with emojis, the primary type of emoji used was *smileys and people* (76%), followed by *symbols* (20%), *animals and nature* (3%), and *food and drink* (1%).

The research also coded the sentiment of the primary type of emojis used according to the Emoji Sentiment ranking (Novak et al., 2015). Of the posts with emojis, most of them primarily used positive sentiment emojis (81%), followed by negative sentiment emojis (14%), and neutral sentiment emojis (5%). Posts with emojis on average had two emojis per post ($M = 1.986$, $SD = 1.4725$), with a range from one to nine emojis.

The research also coded sentiment of the post and found that most of the posts were *positive* (73%), followed by *negative* (20%), and *neutral* (7%). About 87% of the posts contained text, and the primary sentiment of text was *positive* (50%), *negative* (25%), and *neutral* (12%).

The number of likes and number of comments each Instagram entry generated was also collected. Each Instagram entry, on an average, generated 65 likes ($M = 64.575$,

$SD = 156.310$), ranging from 1 to 2385, and three comments ($M = 3.278$, $SD = 76$), ranging from 0 to 76.

Emojis and Social Support

To answer the first research question aimed at understanding how college students are using emojis for supportive communication, the relationship between emoji presence/characteristics and social support communicated in comments was analyzed. For RQ1a, examining how emojis are associated with different types of social support messages, chi-square tests of independence were conducted comparing the frequency of different types of social support communicated in comments with (i) emoji presence, (ii) types of emoji, and (iii) sentiment of emojis. First, a statistically significant relationship was found between types of social support communicated and emoji presence ($\chi^2 (1, df = 4) = 14.166, p = .007$). As shown in Table 1, comments with emotional support were most likely to include emojis (53.7%), followed by esteem support (40%), network support (31.7%), informational support (27.9%), and no support (0%). Most comments had some form of social support and only six comments had no social support.

Table 1
Emoji Presence and Social Support Type in Comments

	Emotional support	Esteem support	Network support	Informational support	No support
Emoji	54%	40%	32%	28%	0%
No emoji	46%	60%	68%	72%	100%
Total	100%	100%	100%	100%	100%
	($n = 82$)	($n = 580$)	($n = 41$)	($n = 43$)	($n = 6$)

Note. $N = 752$; $\chi^2 (1, df = 4) = 14.166, p < .01$

A chi-square test of independence was calculated to analyze an association between emoji types and social support communicated in comments. As shown in Table 2, no significant relationship was found ($\chi^2 (1, df = 16) = 17.537, p > .05$). Therefore, the type of emoji used was not significantly associated with type of social support communicated.

Table 2
Results of Chi-square Test for Emoji Type and Social Support Type in Comments

	Emotional support	Esteem support	Network support	Informational support	No support
Smileys & people	37%	30%	25%	21%	0%
Animals & nature	2%	1%	0%	2%	0%
Food & drink	0%	1%	0%	0%	0%
Symbols	15%	8%	7%	5%	0%
No emoji	46%	60%	68%	72%	100%
Total	100% (n = 82)	100% (n = 580)	100% (n = 41)	100% (n = 43)	100% (n = 6)

Note. $N = 752$; ($\chi^2 (1, df = 4) = 17.537, p > .05$)

In addition, a chi-square test of independence was calculated to compare the frequency of primary sentiment of emojis used and social support communicated in comments. A significant relationship was found between the two variables ($\chi^2 (1, df = 6) = 18.074, p < .01$). As shown in Table 3, positive sentiment was dominant in emojis included in all types of social support responses. In the case of comments with emotional support, 81.8% of emojis were positive, 11.4% neutral, and 6.8% neutral. About 97% of emojis used in comments with esteem support were positive, 2.6% negative, and 0.9%

neutral. All emojis used in comments with network or informational support were positive.

Table 3
Emoji Sentiment and Social Support Type in Comments

	Emotional support	Esteem support	Network support	Informational support
Positive	82%	96%	100%	100%
Negative	11%	3%	0%	0%
Neutral	7%	1%	0%	0%
Total	100% (n = 44)	100% (n = 232)	100% (n = 13)	100% (n = 12)

$N = 301; \chi^2 (1, df = 6) = 18.074, p < .05$

RQ1b was concerned with how emojis are associated with different types of advice strategies. This research did not find enough presence of advice strategies to conduct statistical tests. Less than 10% of the comments contained any type of advice strategy. Of the 752 comments analyzed, only 44 messages (6%) used *bald-on-record*, followed by *off the record* (2%), *redress to positive face* (1.2%), and *redress to negative face* (0.4%).

For RQ1c, understanding how emojis are associated with different topics of stress, a chi-square test of independence was calculated to compare the frequency of emoji presence and topic of stress. As shown in Table 4, no significant relationship was found ($\chi^2 (1, df = 10) = 6.621, p > .05$). Therefore, the type of emoji used was not significantly associated with topic of stress communicated.

A chi-square test of independence comparing the frequency of the primary type of emojis used and the topic of stress found a significant relationship between the two ($\chi^2 (1,$

df = 40) = 55.117, $p = .05$). While *smileys and people* tend to be the most frequently used category of emojis in captions, emojis that are of *smileys and people* are used more frequently for topics about *romantic relationships* (see Table 5).

A chi-square test of independence was calculated to compare the frequency of primary sentiment of emojis used and topic of stress. There was a significant relationship between the two variables ($\chi^2 (1, df = 20) = 32.717, p < .05$). Captions about schoolwork tend to generate more use of emojis with negative sentiment (see Table 6).

Emojis and Responses

As stated in RQ2, this dissertation was also interested in examining whether and how empathy is communicated in online social networks. One way to study this is to investigate the relationship between types of captions and types of responses (i.e., message sentiment, number of likes, number of comments). To start, a one-way analysis of variance (ANOVA) test was conducted to compare the primary topic of stress communicated in the caption and the number of likes generated. There was no significant effect of the caption topic on the number of likes at the $p < .05$ level for the 11 topics of stress [$F(10, 1169) = 1.666, p > .05$]. These results indicate that topics of stress do not influence the amount of likes from other members of Instagram.

A one-way ANOVA test was also conducted to compare the caption's primary topic of stress and the number of comments. There was significant effect of the caption topic on the number of comments at the $p < .05$ level for the 11 topics of stress

Table 4

Results of Chi-square Test for Emoji Presence and Topic of Stress in Caption

	Romantic relation- ship	Living situation	Self-exp- ression	Employ- ment	Family	Other	Social relation- ship	School- work	Physical health	Mental health	Finances
Emoji	67%	64%	51%	50%	50%	47%	46%	45%	36%	33%	30%
No emoji	33%	36%	49%	50%	50%	53%	54%	56%	64%	67%	70%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(n = 6)	(n = 11)	(n = 61)	(n = 14)	(n = 4)	(n = 15)	(n = 11)	(n = 245)	(n = 36)	(n = 14)	(n = 10)

Note. $N = 428$; ($\chi^2(1, df = 10) = 6.621, p > .05$)

Table 5

Results of Chi-square Test for Primary Emoji Type and Topic of Stress in Caption

	Romantic relation- ship	Living situation	Self-exp- ression	Employ- ment	Family	Other	Social relation- ship	School- work	Physical health	Mental health	Finances
Smileys & people	67%	55%	23%	29%	50%	40%	36%	38%	36%	27%	30%
Animals & nature	0%	0%	6%	0%	0%	7%	0%	1%	0%	0%	0%
Food & drink	0%	0%	2%	7%	0%	0%	0%	1%	0%	0%	0%
Symbols	0%	9%	20%	14%	0%	0%	9%	5%	0%	7%	0%
No emoji	33%	36%	49%	50%	50%	53%	55%	55%	64%	66%	70%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(n = 6)	(n = 11)	(n = 61)	(n = 14)	(n = 4)	(n = 15)	(n = 11)	(n = 245)	(n = 36)	(n = 14)	(n = 10)

Note. $N = 428$; ($\chi^2(1, df = 40) = 55.117, p = .05$)

Table 6
Results of Chi-square Test for Primary Emoji Type and Topic of Stress in Caption

	Romantic relationship	Living situation	Self-expression	Employment	Family	Other	Social relationship	Schoolwork	Physical health	Mental health	Finances
Positive	75%	57%	84%	57%	100%	71%	100%	47%	77%	80%	67%
Negative	0%	43%	10%	29%	0%	0%	0%	43%	23%	20%	33%
Neutral	25%	0%	6%	14%	0%	29%	0%	10%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(n = 4)	(n = 7)	(n = 31)	(n = 7)	(n = 2)	(n = 7)	(n = 5)	(n = 108)	(n = 13)	(n = 5)	(n = 3)

Note. $N = 192$; $\chi^2(1, df = 20) = 32.717, p < .05$

Table 7
ANOVA results for the Primary Caption Topic and Audience Reactions

Topics	Audience Reaction	
	Number of Likes <i>M (SD)</i>	Number of Comments <i>M (SD)</i>
Schoolwork	114.98 (286.60)	5.53* (7.28)
Employment	58.39 (26.52)	3.39 (2.46)
Finances	42.32 (23.45)	4.11 (2.67)
Family	36.85 (10.08)	5.46 (3.43)
Living situation	68.41 (67.89)	3.35 (1.54)
Romantic relationship	39.59 (17.32)	5.77 (1.95)
Social relationship	87.85 (50.46)	5.50 (3.25)
Other	51.91 (33.68)	3.31 (2.26)
Self-expression	75.95 (44.25)	4.86 (2.96)
Physical health	83.55 (81.49)	7.15* (6.33)
Mental health	32.60 (12.87)	2.60* (2.09)
Total	94.20 (217.98)	5.30 (6.07)

Note This table shows means (*M*) and standard deviations (*SD* in parentheses).

* indicate statistically significant mean difference according to Scheffe post hoc tests, ($F = 3.064, p < .01$).

[$F(10, 1169) = 3.064, p = .001$]. Post hoc comparisons using a Scheffe test indicated that the mean score for topics about *mental health* ($M = 2.6, SD = 2.094$) was significantly different than the mean score for posts about *physical health* ($M = 7.153, SD = 6.331$) or *schoolwork* ($M = 5.526, SD = 7.276$). These results indicate that captions primarily about *mental health* will generate a significantly smaller number of comments when compared to topics about *physical health* or *schoolwork*. The mean score for *physical health* was also significantly different from *schoolwork, employment* ($M = 3.394, SD = 2.461$), and *living situation* ($M = 3.345, SD = 1.542$). These results indicate that captions primarily about *physical health* will generate a significantly greater number of comments when compared to topics about *schoolwork, employment, or living situation* (see Table 7).

A chi-square test of independence was then used to compare the sentiment of a caption with sentiment of a comment. A statistically significant relationship was found between sentiment of caption and sentiment of comment ($\chi^2 (1, df = 9) = 9.619, p < .05$). As shown in Table 8, captions are likely to generate comments sharing the same sentiment for positive (59.8%) and negative (59.4%) sentiments.

Table 8
Results of Chi-square Test for Sentiment of Caption and Sentiment of Comments

		Sentiment of Comment		
		Positive	Negative	Neutral
Sentiment of Caption	Positive	59.8%	40.6%	50.5%
	Negative	34.1%	59.4%	33.3%
	Neutral	5.9%	0%	16.2%
	Total	100% ($n = 681$)	100% ($n = 32$)	100% ($n = 39$)

$N = 752; \chi^2 (1, df = 4) = 9.619, p < .05$

A chi-square test of independence was calculated to compare the frequency of the primary sentiment of emojis used in the captions and primary sentiment of emojis used in the comments. As shown in Table 9, no significant relationships were found between the two variables ($\chi^2 (1, df = 4) = 5.218, p > .05$).

Table 9
Results of Chi-square Test for Primary Sentiment of Emojis in Caption and Primary Sentiment of Emojis in Comments

		Emoji Sentiment in Comment		
		Positive	Negative	Neutral
Emoji Sentiment in Caption	Positive	96.6%	86.8%	100%
	Negative	2%	8.8%	0%
	Neutral	1.4%	4.4%	0%
	Total	100%	100%	100%
		(n = 147)	(n = 34)	(n = 12)

$N = 193; \chi^2 (1, df = 4) = 5.218, p > .05$

In addition, a chi-square test of independence was calculated to compare the frequency of primary sentiment of caption and sentiment of emojis used in comments. A significant relationship was found between the two variables ($\chi^2 (1, df = 4) = 12.348, p < .05$). As shown in Table 10, captions of positive sentiment tend to generate comments with emojis of positive sentiment (64.6%) and captions of negative sentiment tend to generate comments with emojis of negative sentiment (54.5%).

Content Analysis: Phase 2

The second phase of content analysis was designed to study emojis' visual characteristics and different representations depicted by major operating systems and applications—Apple, Google, Google Chrome Browser, Twitter, Facebook, Facebook Messenger, Samsung, and Windows. The research only analyzed *smiley* emojis, or emojis

Table 10

Results of Chi-square Test for Primary Sentiment of Caption and Primary Sentiment of Emojis in Comments

		Emoji Sentiment in Comment		
		Positive	Negative	Neutral
Sentiment of Caption	Positive	64.6%	45.4%	0%
	Negative	28.4%	54.6%	80%
	Neutral	7%	0%	20%
	Total	100%	100%	100%
		(n = 189)	(n = 91)	(n = 21)

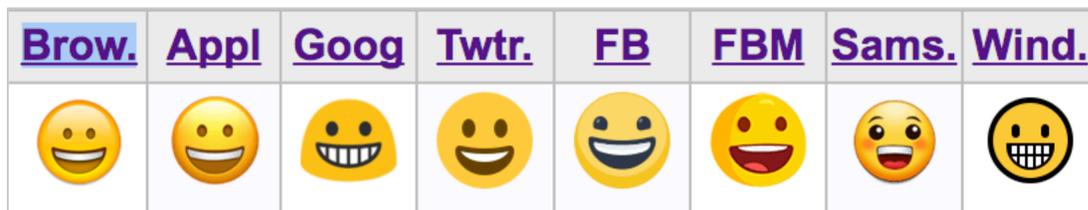
$N = 752; \chi^2 (1, df = 4) = 12.348, p < .05$

that are a cartoon-like image of a face that is expressing positive, neutral, or negative sentiment. Smiley emojis were analyzed according to common visual morphemes—*eyes, eyebrows, mouth, teeth, tongue, and other*. The data for the sentiment score and frequency of occurrences for smiley emojis were adopted from the Emoji Sentiment Ranking (Novak et al., 2015).

Descriptive Statistics

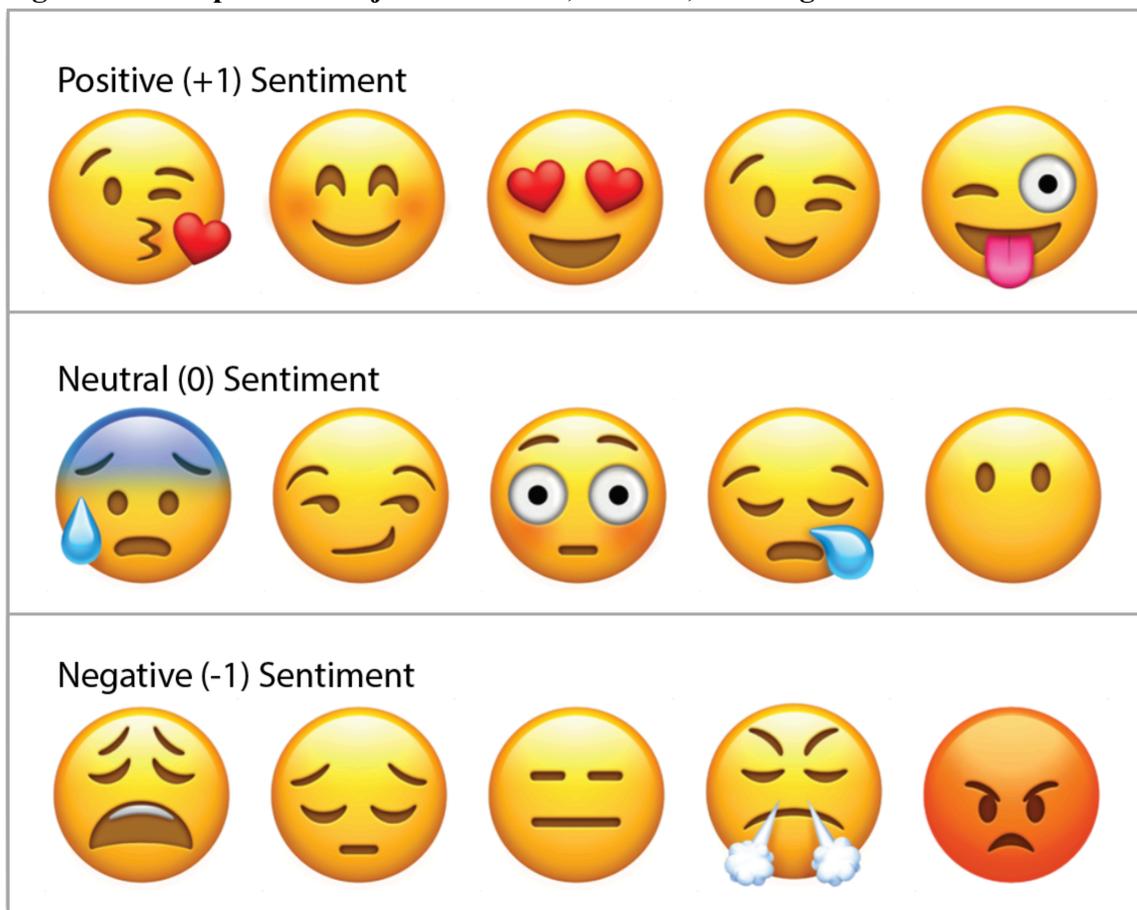
A total of 76 types of smiley emojis were analyzed and each type of smiley emoji is visually represented in eight different ways by eight major platforms (see Figure 4). Over half of the smiley emojis (58%) have been in use since 2010. Sixteen of the smiley emojis were released after 2014 and therefore were not included in the Emoji Sentiment Ranking from 2015.

Figure 4. One type of smiley emoji represented on eight major platforms



The sentiment score of smiley emojis were collected from the Emoji Sentiment Ranking (Novak et al., 2015), where emojis were ranked on a scale from negative one (-1, negative sentiment), to positive one (+1, positive sentiment), where zero (0) is neutral sentiment. Of the smiley emojis analyzed that are included in the Emoji Sentiment Ranking, most of the smiley emojis were of positive sentiment (46.6%), followed by negative sentiment (27.6%), and neutral sentiment (25.8%). Figure 5 shows examples of emojis for each sentiment.

Figure 5. Examples of Emojis for Positive, Neutral, and Negative Sentiment



The visual morphemes of emojis were first analyzed by examining the degree of differences between the different representations of the same smiley emoji. The degree of differences is calculated by observing the number of interpretations for a visual morpheme. One (1) means there is only one representation of the morpheme, two (2) means there are two representation of the morpheme, and so on, and zero (0) means the visual morpheme does not exist.

The study found that the rendering of the *mouth* had the most degree of differences ($M = 2.263$, $SD = 1.02$), followed by *eyebrows* ($M = 1.895$, $SD = 1.03$), *other* ($M = 1.34$, $SD = 1.45$), *eyes* ($M = 1.87$, $SD = 1.05$), *teeth* ($M = .84$, $SD = 1.07$), and *tongue* ($M = .76$, $SD = 1.07$). The *other* category also showed that a little over half of the smiley emojis (55%) had at least one additional visual morpheme beyond the basic visual morphemes identified. On average, a smiley had five to nine total number of differences in visual morphemes (56.6%), followed by ten to 14 differences (30.2%), zero to four total differences (7.8%), and only four smileys (5.2%) had more than 15 total differences.

For RQ3a, understanding the relationship between the visual morphemes of emojis and representation of emotions in emojis, a bivariate correlation was applied to examine the relationship between emojis' visual morpheme differences and the sentiment score, or level of sentiment. As shown in Table 11, there is a significant relationship between the differences in emojis' visual morpheme of *eyes* and level of sentiment ($r = -.324$, $n = 58$, $p < .05$), and *eyebrows* and level of sentiment ($r = -.341$, $n = 58$, $p < .01$). These results suggest that there are more differences across platforms in rendering of the *eyes* and *eyebrows* when it comes to emojis with stronger positive and

negative sentiments. For example, Figure 6 compares the number of visual morpheme of eyes for *face throwing a kiss*, which had a strong positive sentiment score of .701, with *smirking face*, which had a slightly lower sentiment score of .332, and hushed *face*, which had an almost neutral sentiment score of .123. For the smiley *face throwing a kiss*, an emoji with a strong positive sentiment, the emoji’s eyes are depicted up to five different ways by different applications, operating systems, and devices. For the smiley *hushed face*, an emoji with a weaker positive sentiment since the score is closer to zero, there are only 2 different ways in which the emoji’s eyes are depicted.

Figure 6. Examples of Differences in Emojis’ Visual Morpheme of Eyes

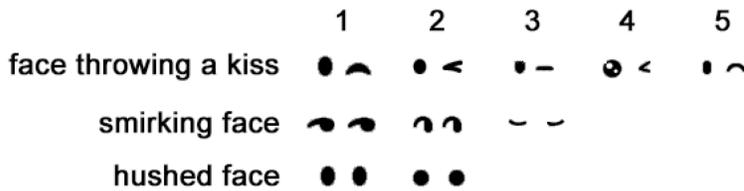


Table 11

Results of Bivariate Correlation Test for Visual Morphemes and Emoji Frequency

		Sentiment score	Visual Morpheme					
			Eyes	Eyebrows	Mouth	Teeth	Tongue	Other
Visual morpheme	Sentiment score							
	Eyes	-.324*						
	Eyebrows	-.341**	.373**					
	Mouth	-.062	.286*	.160				
	Teeth	-.021	-.009	.267*	-.017			
	Tongue	.0203	-.130	-.094	.163	.349**		
	Other	-.001	.094	.004	.072	.003	-.195	

* Correlation is significant at the .05 level (2-tailed).

** Correlation is significant at the .01 level (2-tailed).

Focus Group Analysis

A total of five focus groups, with five to seven participants for each group, were conducted with undergraduate students enrolled at a large public university in the Midwest. There was a grand total of 29 participants, and of the participants, there were two freshmen, 11 sophomores, 14 juniors, and two seniors. All of the participants were U.S. students with active Instagram accounts and all except one participant had attended high school in the Midwest.

College Students' Activities on Instagram

Participants were asked to share their online activities on Instagram that they enjoyed participating in. A couple of key motives emerged from the discussion about favorite activities on Instagram.

For visual updates. Many of the participants discussed that they liked using Instagram to look at pictures and stories as a way to stay updated on their friends' activities. As one participant explains, "I have friends all over the country, so it's kind of a way to keep tabs on people's everyday activities without really having to check-in." For many participants, Instagram was favored over other online social networks "because almost every single one of (their) friends has an Instagram" and "it's so easy just to go through all the updates." While some still choose Facebook as their favorite online social network because "it has deeper roots," others are choosing Instagram and Snapchat because they feel that it is "more in the moment" and less of a popularity contest. One college student participant explained:

I just think (Instagram's) more fun. It's a way that people just get to show themselves instead of trying to get the likes, and trying to get the attention.

It's a way to share funny stuff that happens through your day.

Another student shared:

Sometimes, Facebook can get super creepy because you're like, "Oh, I know you went to this concert. You didn't even tell me about it. So, (Instagram's) more for fun without things getting super intense.

Beyond staying up-to-date with friends and family, many of the participants also used Instagram to "know what's trending or what people are laughing about." Students would occasionally use or search hashtags to learn more about a campaign, "support a cause," or stay up-to-date on social movements. As one participant recounts:

I remember when Black Lives Matter was first really coming out on (Instagram)—not really coming out but you know what I mean. I would search like, oh, what's this all about and find out more.

For humor and wit. The second motive that emerged from the focus group was about how college students use Instagram for humorous intentions. Many participants discussed that they liked using Instagram "to get really easy updates" and "really funny memes." One participant explained:

I'm a huge GIF person. I share those literally all the time. People are always like, why are you sharing this? But, I just think it's fun. Typically, it's for me to have a laugh.

Not only is Instagram a place to share humorous content, college students also use the online social network to identify with similar others and to strengthen those relationships. One participant shared, "I think, for me, Instagram's probably my favorite because I'm kind of the funny (person). I just like people who have good humor." Most participants

said they “keep up with (Instagram)” mostly because “it’s got some really good humor.”

Besides using Instagram to find and share funny content, several participants also discussed how they used Instagram for “making the perfect caption.” Participants frequently compared Instagram with Facebook and preferred the former online social network for “editing and adding a caption” that showcases their cleverness and “wit.” College student participants regarded captions as representative of their style and an opportunity for them to “make jokes” or “make fun of pictures.”

College Students’ Emoji Activity on Instagram

Participants were asked to share how they use emojis on Instagram and two key types of activities emerged from the discussion about using emojis on Instagram: to replace commenting using text and to enhance the context of a message.

Replace textual commenting. Focus group participants reported that the primary reason for using emojis on Instagram is to respond to a friend’s post in a simple and visual manner without having to write text. Many participants indicated that they would “always comment an emoji” on their friends’ Instagram posts. One participant explained, “I never normally write anything, I just do an emoji.” Some participants also said they might use emojis when they are “tagged in something and really don’t want to comment.” Participants also indicated that they would use emojis as “filler” or “conversation ender.” Participants indicated that they might use an emoji like the heart emoji as “thank you” or “the thumbs up” to communicate that the message was received. One participant explained, “I would never put emojis in the sentence. It kind of does wrap up the message. It’s like emotions to the text or whatever. Usually, one emoji would come last.”

The discussion also revealed that participants respond with a variety of emojis.

One participant's "go to" emoji is "the dancing emoji" while another participant tends to "comment with hearts sometimes, or something like that." One participant discussed, "If someone post something I like, I go, yeah, fire emoji." Some participants used emojis less frequently, as one college student participant explained: "I don't use emojis a ton. I only use it with my close friends or my boyfriend. I'll do the heart eye one. It really depends on the picture."

Enhance the context of a message. Another type of activity that emerged from the focus groups was the use of emojis to enhance the context of a message. Participants shared that they are most likely to use emojis in sending celebratory messages. One participant explained, "Sometimes, if I'm sending a happy birthday post on (Instagram), I'll also use a heart." Depending on the situation, some participants also use emojis in captions. As one participant noted, "It depends on the caption, honestly. If I'm try to make it funny or something, I'll do an emoji that matches it. But, if it's kind of serious, or something, then I won't." Another explained, "If you're on vacation, you might do a sunshine or seashell. Some of them will be situational."

However, some participants indicated that they don't generally use emojis in captions. Some shared that they think using emojis in captions are "like hashtags" and "on its way out." One participant explained:

I try to stay away from emojis in my captions. It's just like a look that I'm not into. I just don't want an emoji, for a lack of a better word, tainting my caption. I wrote this beautiful caption. I don't want to have this weird little thing on the end of it. It just kind of ruins the mood, I guess.

Emoji Sentiment and Use

A series of questions were asked to understand how the sentiment of emojis is associated with college students' use of those emojis. These questions help address RQ3b.

First, participants were asked to identify their most frequently used emojis from a deck of 20 pre-selected emojis. The 20 emojis were selected because they were the most frequently used smiley emojis (Goodman, 2015) for the three different levels of sentiment—positive, negative, and neutral (Novak et al., 2015).

Of the 20 emojis, the top five emojis used most frequently by the college student participants were all of positive sentiment. Out of 29 participants, 24 indicated that the *smiling face with heart eyes* (🥰) is one of their most frequently used smiley emojis, 23 participants selected the *face with tears of joy* (😂), 23 participants selected the *face blowing a kiss* (😘), 17 participants selected the *smiling face with smiling eyes* (😊), and 15 participants selected the *smirking face* (😏). Four of the five least commonly selected smiley emojis were of negative sentiment. Only four participants selected the *frowning face* (😞) as one of their most frequently used smiley emojis, followed by two participants each for *face with steam from nose* (🤔) and *pouting face* (😡), and nobody selected the *angry face* (😠) as one of their most frequently used emojis.

Then, each focus group participant was asked to sort the deck of 20 emojis from positive to negative sentiment. The aim of the card-sorting activity was to understand how college students perceived and organized the emotions smiley emojis are designed to portray. After participants sorted the deck of emojis, they were asked to discuss their sorting process. Most participants described the process by imagining how they would

react to various scenarios, or more specifically, how they would respond to “good news first, then bad news” with emojis. As one participant explained:

Well, mine just goes from super elated down to kind of a goofy mood.

Then, we get into the shock area where you’re like, “Oh, I just got some bad news,” or something like that. But then you’re mad about the bad news. Then, you get sad about the bad news. It’s pretty crushing.

While a few participants rated sadness as a more negative sentiment than anger, several other participants perceived anger as more negative than sadness. As one participant described:

With me, I guess I don’t really text people when I’m angry at them. I would never use a lot of these angry ones. I see them as way more negative than the sad ones, which, for me, could be expressing, “Oh, I’m sorry that happened.” That’s not super negative.

Participants also shared that the stronger sentiments were easier to sort but the “middle area” became ambiguous and confusing. They indicated that “the middle ones all kind of seem the same” and some emojis were difficult to interpret. One participant shared, “I never know what this one (🤔) is, the finger over cheeks. Embarrassed or ‘oh, gosh!’” Other participants perceived emojis of neutral sentiment as more susceptible to sarcasm and depended on accompanying text messages. As one participant explained: “These middle ones, it depends on what the words are because you can use some of these really sarcastically. Because, I could use that one (😏), not be annoyed with someone but just jokingly.”

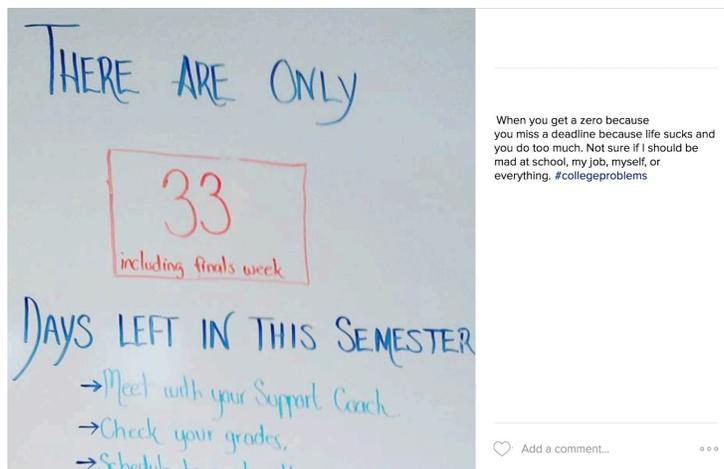
For the most positive sentiment, 11 participants chose the *smiling face with heart*

eyes (😍), nine participants chose the *face with tears of joy* (😂), followed by four participants for the *smiling face with smiling eyes* (😊), three participants for the *grinning face with smiling eyes* (😄), and one participant each for the *face blowing a kiss* (😘) and the *face with stuck-out tongue and winking eye* (😜). For the most negative sentiment, 14 participants chose the *pouting face* (😡), followed by five participants for the *loudly crying face* (😭), four for the *face with steam from nose* (😓), two for the *unamused face* (😏), and one participant each for the *frowning face* (😞), *angry face* (😠), *pensive face* (😔), and the *expressionless face* (😐).

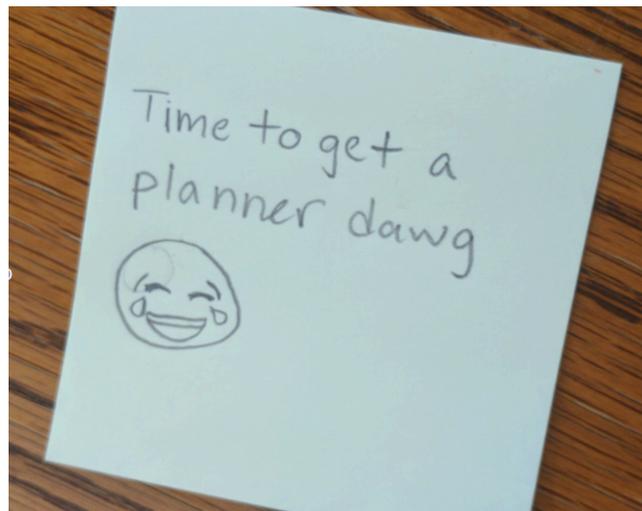
Emoji and Social Support Communication

To understand how college students use emojis for socially supportive communication, participants were asked to respond to two different scenarios. The first scenario was aimed at examining how college students would use emojis to express social support. The second scenario was aimed at examining whether college students perceived emojis to be supportive or empathetic. The first scenario was:

Imagine you see this post from a close friend on Instagram: “When you get a zero because you miss a deadline because life sucks and you do too much.” Write out your answer and indicate which emojis you would most likely use.



Participants were given time to write down their responses and then were asked to discuss their answers. Most of the participants indicated that they would use a combination of text and emojis. One participant explained, “I feel like an emoji here without any words would just probably not be nice.” Six participants said that they would leave a comment using the emoji *face with open mouth & cold sweat* (🤦), followed by *face screaming in fear* chosen by five participants (😱), and the *weary face* chosen by four participants (😓). These results indicate that college student participants would provide emotional support by using emojis to show sympathy or empathy towards their distressed friend. A few of the participants indicated that they would use a positive sentiment smiley emoji sarcastically. One participant explained, “Like, the heart eyes (🥰). I love your pain.” Another participant said, “Yeah, if this was my roommate, who I see every day, I’d probably comment on it. I’d probably comment this exact same thing, super sarcastic.”

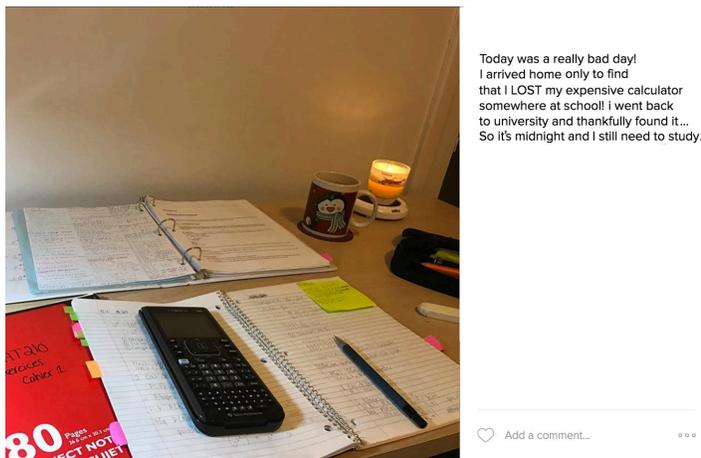


These responses indicate that some college participants would use emojis in communication to lighten the situation and make the problem seem less severe.

There were also several participants who discussed how they would not comment if they saw a post like this on Instagram from a friend. Some participants felt that the content presented in the scenario is too personal to be shared on Instagram. As one participant explained, “Instagram’s my happy... it’s not for depressing stuff.” Other participants indicated that they would not comment on the post but they would text or call the friend to find out more about the situation. These results indicate that the lack of social support witnessed in online social networks does not necessarily mean a lack of social support in general. Distressed individuals might be receiving support through more private channels of communication.

The second and final scenario presented to participants was intended to understand different levels of empathy related to emoji use. Participants were asked to sort the deck of emojis from most empathetic to least empathetic in response to the following scenario:

Imagine you posted the following photo and caption to Instagram: “Today was a really bad day! I LOST my expensive calculator and I still need to study.” A close friend responds with one of the emojis in the deck. Sort the deck of emojis from most empathetic response to least empathetic response.



The *pensive face* (🙄) was chosen by 18 participants as one of the top five most empathetic emoji, followed by 14 participants for the *face with open mouth & cold sweat* (🥵), 13 participants for the *frowning face* (😞), nine participants for the *face screaming in fear* (🤪), and eight participants for the *flushed face* (😳). Many of the emojis were of negative sentiment and reflected how the participants would feel. One participant explained, “I feel like if people were to care about me, they would put a sad one.”

Of the top five least empathetic emojis in response to the presented scenario, 16 participants chose the *face with tears of joy* (😂), followed by 12 participants for the *face with stuck-out tongue and winking eye* (😜), 11 participants for the *face blowing a kiss* (😘), 11 participants for the *grinning face with smiling eyes* (😄), and a tie of nine participants for the *smiling face with smiling eyes* (😊) *smiling face with heart eyes* (😍). Interestingly, these least empathetic emojis were also selected as the top most positive sentiment emojis in general.

Communicating with Emojis

To understand how the use of emojis differs between weak and strong ties in online communication, focus group participants were asked to share how they used emojis in online communication with *strong ties*—people they had close relationships with—and *weak ties*—people they had distant relationships with. The following sections discuss how emojis are used in communication with the two different types of relationship.

Strong ties. In asking participants to discuss how they used emojis with people whom they have close relationships with, most of the participants mentioned good friends

and parents. While some shared trepidation in using emojis in online communication due to issues with misinterpretation, most of the participants discussed that they used them frequently when communicating with people they have strong ties with. Participants indicated that ties with friends are stronger than ties with parents because of age. One participant explained, “I feel like more people my age understand what meaning goes with what emoji.” Another participant shared, “I know me and my best friend, we have a certain emoji and we only use it with each other.” Participants also indicated that they felt more comfortable in using a wider range of emojis with close friends. One participant said, “If I’m using emojis with (close friends), I just use random ones, or, I just use the most obscure emojis ever.” The practice of sending messages that consists of only emojis was mentioned several times by college student participants as one participant shared, “With my friends, if I’m bored, I’ll say what I want to say via emojis.” Another one explained:

It depends on the situation, I guess. It could be used for with some of my friends. If I want to go out, I’ll send just a margarita emoji and they know what we’re talking about. But, then, if I’m just having a normal conversation and they’ve said something funny, I’ll send the crying face a thousand times.

Specific ways that college student participants use emojis with close friends vary, with some participants indicating that it depends on “if (they’re) feeling it or not.” However, they indicated that if their friends “use emojis a lot, (they’ll) use emojis a lot too.”

While most participants mentioned parents when asked to discuss how they used emojis with people whom they have close relationships with, many of the participants

also indicated that they used emojis less with parents due to misinterpretation issues. Several participants shared anecdotes of conversations they've had with their parents where there was a miscommunication due to different interpretations of an emoji. As one participant recounted:

I would send my mom the laughing face emoji with the tears and she thought it was a crying emoji. She was like, "What's wrong?" I was like, "No, mom, that's someone laughing really hard." She's like, "No, that's someone crying." So, I use it more with friends.

Another participant shared:

My dad would start sending the finger up thing, just to say stay up. I don't know why. Maybe it's something he picked up in our family group messages. I don't know why he would do it. I think my sister taught him.

Several of the college student participants iterated on the idea that they avoid using emojis in online communication with parents because "they just don't really understand them."

Some participants also discussed how some emojis are particularly awkward to use with parents. While college student participants might "use billions" of emojis with friends and feel "comfortable being all wacky with a lot of (their) friends," they tend to use a lesser range of emojis with parents. One participant explained: "Sometimes my parents use the kissy face. I just feel like that's weird. It's more of a flirty thing."

While college student participants might perceive using "a lot of emojis" with close friends as "fun" and a way to combat boredom, they perceive the behavior as unusual from their parents. One participant recounted:

My mom uses emojis way more than I do. She likes it. One day, we were talking about our vacation, we were going to Mexico, and she literally put out every emoji you could ever find that had to do with the beach or traveling. It was ten emojis. I was like, “Did it take you five minutes to do that? What did you do that for?” I sent this one little emoji back.

Another participant described, “My mom *exclusively* only uses the heart emoji. It’s “call me, *heart*,” or “you’re in trouble, *heart*.” It’s the *only* emoji she’ll ever use.” Regardless of the amount of emojis parents use in communicating with their child, college student participants tend to regard their parents’ use of emojis in general as “weird,” “uncomfortable,” or “confusing.”

Weak ties. In asking participants to discuss how they used emojis with people whom they have distant relationships with, most of the participants mentioned people whom they have new or professional relationships with. In general, participants indicated that they would avoid using any emojis with people they had weak ties with. College student participants viewed emojis as “more for informal communication” and inappropriate for professional situations when “you’re trying to be serious.” Participants believed that sending emojis would be “too casual” and would never send it to a boss or “somebody that (they’re) working for.” One participant shared:

I just started a new job and I was just texting one of my managers about stuff. I thought about sending an emoji, but then, I was like, no. We’re not on that level yet. Not going to do that.

Participants also discussed reasons that they would not send emojis to new acquaintances for two main reasons. First, participants indicated that they are unlikely to

use emojis with people until they become familiar with their online communication practices. They are concerned with being “labeled as that (person) who uses a lot of emojis” and feel that emojis are something to use “more with people (their) age.” Second, college student participants avoid using emojis with people in order to be perceived as more mature. One participant explained: “Even someone you just met, you kind of just don’t know what to do. Especially with adults, or something. Sometimes, they’re super into them and you’re like, okay, I think they like these.” Another participant said, “I wouldn’t use it with someone I hadn’t met before or trying to make a good first impression. Like, with my boyfriend’s parents, I’m in group chats with them but I wouldn’t send an emoji.”

College student participants use emojis primarily to replace commenting with text, sometimes as conversation fillers or enders. Participants also indicated they are likely to use emojis for enhancing the context of a message. In general, college student participants use emojis with people they have closer and more informal relationships with.

Emoji Miscommunications

Participants were then asked to share concerns and experiences they had with miscommunication that occurred due to the use of emojis. A couple key issues emerged from the discussion about miscommunication with emojis and help to further address RQ3a, how differences in the visual representation of emojis influences their use.

Differences in interpretation. As mentioned in earlier sections, some college student participants indicated that they avoid using emojis with parents due to issues with interpretation. One participant had shared how the *face with tears of joy* (😄) emoji was

interpreted by the participant's mom to mean distress instead of a positive sentiment.

Another participant shared:

My dad sent me this emoji (😂) once when I had a bad day. I was like, "It's not funny." And he was like, "No, there's tears." I was like, "Out of all the emojis that have tears on it, you pick the one that's smiling." He's like, "I was trying to be positive."

Besides parents, participants also shared interpretation issues that happened with friends. One participant recounted:

There's one like this without the heart (😘). It kind of looks like it's kissing but, also, kind of looks like it's whistling. One time I used it as whistling and it was misinterpreted as kissing.

Another participant shared:

I feel like this one (😬), the disgusted looking one, the side-eyed one, sometimes, I just do it as a joke and people are like, "Oh, she's actually mad with that." I'm like, "No, I was actually just being funny."

Participants discussed how "sometimes (emojis) need words" because, without text, the meaning of emojis "can get taken out of context." Participants also shared that some emojis can be "used in different contexts." For example, the *smiling face with heart eyes* (😍) could be used when "you're being sarcastic" or "to make (a message) more serious."

Differences in visual representation. Another major issue for miscommunication is due to the fact that emojis are displayed differently on different devices, operating systems, or applications. Participants discussed how the visual discrepancy of emojis

between Apple and Android operating systems are problematic as “it completely changes the meaning”. One participant explained:

I don't use (emojis) with my parents or brother, or cousin, because they have Androids, so it's different. They just show up so differently on Androids. They convert it to whatever Androids have.

Another participant shared:

My friend has an Android so sometimes when he sends me (emojis), it shows up differently. Specifically, with this one (😬). Whenever he sends me (the emoji), I'm always so confused why he's putting that emoji there.

The design of the emojis keyboard on different devices can also create incidences of miscommunication. Some participants explained how they felt there are too many emojis and sometimes the sentiment of emojis can be difficult to understand unless they “zoom-in” on the emoji. One participant explained, “When I'm on my computer, it's annoying to click the little emoji thing and scroll through them. It's hard to look on the computer.” Another participant shared:

We got a new person at work and they were like, “Hey, welcome,” and I emailed, “Yay, welcome,” and I put that (😬) thinking it was the big smiley face. It was the grimacing emoji. I'm like, “I don't know what I did. I'm sorry.”

The focus group study found that many of the college student participants are using Instagram as their preferred online social network for staying up to date with the activities in their social network. Participants are more likely to use emojis of positive

sentiment to be playful, humorous, or sarcastic. College student participants indicated that they are unlikely to use emojis with professional relationships or when they are aware of the risk for miscommunication. Many participants also expressed feeling uncomfortable exchanging emojis with parents as they feel parents do not fully understand how emojis are supposed to be used in different contexts. Participants shared that miscommunication often occurred due to different interpretations of the meaning for emojis or different visual representations of emojis. In responding to two different scenarios related to *#collegeproblems*, participants also indicated that they would use emojis to communicate emotional support to the distressed individual by using emojis of negative sentiment to demonstrate sympathy or empathy. Several college student participants would use positive sentiment emojis to communicate esteem support by trying to lessen the severity of the situation.

Findings from both content analysis and focus groups provide important insights as to how college students use emojis in communicating different types of social support (e.g., emotional, esteem, network or informational) to friends or colleagues who express difficulty or distress in dealing with various aspects of college life. Interpretations and implications of these findings are outlined in the Discussion section.

CHAPTER 5

DISCUSSION

This dissertation examined how college students use emojis for social support communication in online social networks through content analysis and focus groups. First, this research applied content analysis to examine how college students use Instagram, one of the most popular social networking platforms, to communicate topics of stress and how they use emojis in captions and responses on Instagram. Second, another content analysis approach was used to examine the visual representations of emojis and how they can affect the ways emojis are used. Finally, focus group research was conducted to understand college students' perspectives in using emojis in online communication.

Results from this research indicate that college students are migrating to other online social networks beyond Facebook to disclose topics of stress and that Instagram is no longer simply used to share fun and entertaining content. This dissertation's content analysis of Instagram posts including the *#collegeproblems* hashtags showed that college students tend to share topics about schoolwork, self-expression, and physical and mental health through this increasingly popular social networking platform. Indeed, a Pew Research Center report shows that Instagram use has significantly increased among those ages 18-29 with about 59% of them using Instagram as of 2016 (Greenwood, Perrin, & Duggan, 2016b). In comparison, only 33% of those ages 30-49, 18% of ages 50-64, and 8% of 65 or older used Instagram as of 2016.

This study revealed that emojis are used in almost half of the captions and comments of the public Instagram posts analyzed. In particular, a greater amount of

positive sentiment is found in both the use of emojis and overall sentiment of posts. Content analysis of the visual representation of smiley emojis showed that there are more positive sentiment emojis but there are also more visual differences in emojis with strong positive or strong negative sentiments. The focus group research further showed that college students are more comfortable with communicating using emojis of positive sentiments than emojis of neutral or negative sentiments. Emojis were often used to convey humor and sarcasm and can be perceived as too expressive or playful for formal and serious communications. Furthermore, college student participants indicated that they avoid using emojis with parents and new acquaintances. Students were more likely to use emojis with close friends and mostly for the purpose of enhancing the sentiment of the message. The following sections discuss in greater detail the interpretations of the key findings from the content analysis and focus groups data sets.

College Students in Online Supportive Communication

To understand how college students disclose stress in online social networks, the study adopted categories from the Everyday Stress Survey to analyze content from Instagram. The Everyday Stress Survey has been used by previous research “to assess the ongoing problems and chronic hassles most likely to be experienced by undergraduate students” (Burks & Martin, 1985, p. 29), to study how “the accumulation of daily stress over time is associated with negative (college) adjustment outcomes” (Bell & D’Zurilla, 2009, p. 445), and to examine the types of stress college students experience “in the transition from education to working life” (Dietrich, Jokisaari, & Nurmi, 2012, p. 82). While the survey has been used in the past and contains top issues that can cause stress, it was missing topics like self-expression, mental health, and physical health, which were

found to be relevant in college students' discussion of stress via online social network platforms. Consequently, these three new categories—self-expression, and mental and physical health—were added to this study's content analysis.

Although a little over half of the posts were about issues with schoolwork, the newly introduced categories were part of the top five most frequently occurring topics of stress. This suggests that college students are sharing a range of content on Instagram from personal problems like mental health-related stress to more general problems like schoolwork-related stress. Interestingly, although the topics were mostly about issues related to college, almost 75% of the posts were positive in sentiment. This suggests that while Instagram users are sharing content about negative experiences, like college problems, there is still a desire to present the situation in a humorous or happy perspective so that it is entertaining to others. Recent research has also found that college students' motivation for using Instagram is primarily for entertainment purposes, followed by self-documentation and self-expression purposes (Alhabash & Ma, 2017).

The study applied Cutrona and Suhr's (1992) social support typology to examine how social support is communicated in comments for posts about college problems. Unlike previous research that identified emotional support as the most frequent type of social support communicated in online environments (Coulson & Greenwood, 2012; Evans et al., 2012; Smedley et al., 2015), this study found that esteem support was the most frequently communicated type of social support in comments. The difference in the results may be because of the different context online social support was examined in. This study analyzed interactions assembled over a hashtag, whereas previous research studied interactions from dedicated forums and online support groups.

Unlike an online support group, members using a hashtag cannot join or follow a group and must repeatedly perform active searches of the hashtag to stay current with the content shared. Besides the lack of membership, hashtags are primarily used to organize content, not to establish and maintain online relationships. It would be unusual for a user to post content unrelated to college problems and use the hashtag *#collegeproblems*. For most online support groups, users must apply for membership before they can interact and share content with the other members in the group. Unlike online support groups, comments found on public Instagram posts can be from any Instagram user, including companies and commercial organizations. In the Instagram content analysis, it was difficult to determine whether the account reflected an individual or organization (see Figure 7). Despite this, the results from this research suggest research on online social support should not be limited to formal online support groups but should include informal groups on online social networks to have a more holistic understanding of social support online.

Figure 7. Examples of Instagram Usernames

rexvenard 🙌🙌🙌👍👍

bestpartofday This is awesome :)

kingessays rather fabulous snap-shots!

One of the important findings from this study is that college students prefer Instagram over Facebook and Twitter not only as their primary online social network to keep in touch with family and friends, but also as a creative outlet. As discussed in earlier

sections, prior studies found that young adults shared visual content in online social networks to attain validation of creative work and self-expression (Greenhow, 2011; Zhao, Grasmuck, & Martin, 2008). Through Instagram, users are more likely to receive esteem support when they share creative expressions with the network. Creative expression is not limited to visual content, but contains textual content as well. Several college student participants discussed how they used captions to showcase their cleverness and wit, and Instagram posts with *#collegeproblems* often shared topics about college problems in a humorous or sarcastic tone. As a result, comments like “Nice!”, “Great!”, or “Cool!” demonstrated esteem support in the form of a compliment, and comments like, “You got it!” or “Thanks for posting!” demonstrated esteem support as a statement of validation.

Several college student participants from the focus groups indicated that the content they post to Instagram is mostly for humorous intentions. As previously mentioned, this suggests that Instagram users might be sharing content based on their desire for other members to perceive them as interesting or entertaining people. In this case, users are once again seeking validation or confirmation in the form of esteem support when sharing content through their Instagram accounts.

Similar to results from previous research on online social support, which found tangible assistance to be the least present form of social support (Evans et al., 2012; Houston, Cooper, & Ford, 2002; Mo & Coulson, 2008), this study did not find any efforts of tangible assistance in the analysis of Instagram comments. Tangible assistance requires face-to-face interaction, which is difficult to conduct with members residing in online social networks. Sometimes, users are geographically distant from each other or

relationships on certain online social networks are formed and maintained strictly in the digital realm. It is also possible that tangible assistance is offered or provided through other modes of communication. For example, if a college student finds out that a friend's car has broken down via Instagram, he or she might text or call the friend to offer a ride, or share places to get the car fixed.

Communicating Support with Emojis

The Instagram content analysis found that comments with emotional support were most likely to include emojis. In particular, over 80% of the emojis used in comments with emotional support were of positive sentiment. In terms of captions, this study found that emojis of smileys and people are the most frequently used. The content analysis of the visual representations of smiley emojis found that there was twice as many emojis of positive sentiment than emojis of negative or neutral sentiment. The quantity of positive sentiment emojis used might be due to the fact that there are more positive sentiment emojis available. However, the ratio of the sentiment of emojis might continue to change as more emojis, including smiley emojis, are added to Unicode. The availability of more neutral or negative sentiment emojis can have an impact on how other types of social support can be expressed. The availability of more emojis in general can also affect the frequency emojis are used in online supportive communication.

One of the reasons the most popular type of emojis used was smiley emojis might also be because emojis in general are used to enhance the sentiment of the message. This study found that emojis are similar to emoticons, the predecessors of emojis, as indicators for the sender's facial expressions (Novak et al., 2015). Since visual cues like body language, hand gestures, and, in particular, facial expressions are absent in online

communication, like emoticons, smiley emojis are then used more frequently to communicate the display of emotions people might project in face-to-face communication (Kaye et al., 2016).

Likewise, focus group participants indicated that they would use emojis to enhance the meaning of the message, and thus, the sentiment of emojis used would complement the sentiment of the textual content of a message. Similar to emoticons, the use and perception of emojis are determined by corresponding text and contextual cues (Skovholt et al., 2014). Since there were significantly more messages of positive sentiment, consequently, there are more emojis of positive sentiment used.

Another important finding from this study is identifying reasons college students tend to use more emojis of positive sentiment. While one of the reasons is that emojis are used in a playful manner, many focus group participants also indicated that they feel more confident when it comes to interpreting positive sentiments in emojis. Results from the focus group study indicated that students struggle with determining whether anger or sadness is a more negative sentiment. Their own lack of certainty in categorizing and identifying negative emotions may be why students tend to avoid using emojis of negative sentiment in communication. For distressing situations, students would not use emojis because the presence of emojis would make the situation seem less serious and as one focus group participant explained, “It would be upsetting to see one.” Therefore, emojis of negative sentiment are likely to be perceived as an inappropriate form of visual cues for enhancing negative sentiments in online communication.

This study was unable to analyze facework strategies due to the lack of advice found in Instagram comments. The Instagram posts analyzed were public and likely

consisted of responses from both weak and strong ties, which might have caused users to feel uncomfortable when determining the appropriate facework strategy to implement. Part of delivering the most effective facework strategy depends on the “dynamic of the relationship” (MacGeorge et al., 2016) and the desire to preserve the advice recipient’s self-esteem and privacy (Brown & Levinson, 1987). Several college student participants indicated that if they saw a close friend’s Instagram post disclosing stress related to college problems, they would not leave a comment. Instead, participants expressed they might call or text the friend, or wait until they can communicate with the friend in a face-to-face situation. One participant shared, “I would probably call or text them and be like, delete it. It just sounds really personal, something to not put on Instagram.” Further research is needed to examine how advice-giving occurs in direct messaging or more private forms of online communication.

Communicating Virtual Empathy

Attaining social support can be critical for college students experiencing immense stress as social support can decrease the intensity of stress or alleviate feelings of loneliness (Cutrona, 1996). Although Instagram has been regarded as an online social network that is overly curated and portrays members in positive and idealistic situations, this study found that there are members using the application to share content of less-than-ideal situations—specifically, college students disclosing problems related to college. More importantly, this study found that when users shared their problems about college publicly on Instagram, a variety of social support, including empathy, is available. Recent studies examining Instagram posts that convey negative emotions or

difficult experiences have also found that disclosures generate supportive responses (Andalibi, Ozturk, & Forte, 2017; Chung et al., 2017).

The ability to communicate with visual cues in digital environments is not only helpful for conveying various types of social support, but it can also be essential in expressing empathy. Empathy is a more specific form of emotional support as it is the ability to experience and understand another person's emotional state, and may result in developing shared feelings or exhibiting supportive behaviors (Carrier et al., 2015; Hoffman, 2008). The study of virtual empathy then, is the study of how characteristics of empathy are expressed over computer-mediated communication.

Another important finding from this study is identifying how virtual empathy can be observed in online social networks. The Instagram content analysis found that the sentiment of captions tends to generate the same sentiments in comments. This mirroring of sentiments might be considered as evidence of one of the most basic forms of empathy: mimicry. Mimicry is where the empathetic person mimics the facial expressions, tone, and emotional experience of another person (Hoffman, 2008). While higher levels of empathy might trigger demonstrations of more active forms of social support such as advice giving or tangible assistance, it was not witnessed in the analysis of Instagram's *#collegeproblems*, probably due to the lack of intimacy. Intimacy is developed from close relationships and enables college students to empathize with others (Vossen & Valkenburg, 2016). The relationship between users over an Instagram hashtag lacks the intimacy required to express more explicit forms of empathy.

While the study found no relationship between the number of likes and topic of a college problem in Instagram posts, there was a statistically significant association

between the number of comments and topic of a college problem. That is, different topics of college problem generated different numbers of comments—an important form of audience reaction. In particular, topics about schoolwork and physical health tended to generate more comments than topics about mental health. College students are likely to be more familiar with schoolwork and physical health problems than issues with mental health. Since empathy relies on shared experiences, there are probably fewer people who can empathize with the situation and feel comfortable with commenting or explicitly communicating empathy towards mental health issues experienced by others. Like previous social science studies that have analyzed “basic digital records of human behavior” to understand personal attributes of users (Kosinski, Stillwell, & Graepel, 2013, para. 4; Scissors, Burke, & Wengrovitz, 2016), analyzing recorded reactions can also help identify forms of interactions that are effective at expressing empathy.

The analysis of Instagram also found that comments in response to posts about schoolwork-related issues were the only ones that were more likely to include the use of emojis of negative sentiment. One reason might be because issues with schoolwork are experiences that most college students can relate to and empathize with. Due to the ability to better identify emotions related to schoolwork problems, students are perhaps more confident in selecting the appropriate emojis of negative sentiment to communicate sympathy or empathy towards the situation.

In terms of virtual empathy communicated to college students experiencing college-related problems, the focus group research found that college student participants frequently reported receiving messages from parents providing support and empathy. The results further indicate that when parents demonstrate empathy with emojis, it is

sometimes not perceived as empathetic or supportive. Instead, most of the college student participants explained that receiving emojis from parents was weird, unusual, or even awkward. The lack of empathy perceived in parents' use of emojis might be due to misinterpretation issues with emojis. The foundation of empathy lies on the commonalities shared between the empathetic person and the person showing symptoms of distress. If college students perceive their parents' interpretation of emojis to be different from their own understanding of emojis, then they are likely to perceive the use of emojis by parents as an ineffective way to communicate virtual empathy. This suggests that the development of the visual language of emojis is not just dependent on the culture of users, but their relationships as well.

College Students' Visual Language of Emojis

The findings from this study can also be important for the future design and development of emojis. While there are some prior studies on how visual graphics like emoticons and other ASCII art affects online communication, there is little research available on emojis' role in the visual language of online communications. Visual language is the use of text, graphics, and other visual elements to communicate complex ideas (Horn, 1998). Similar to other languages, visual language is not universal and is developed by members of a group through social practices.

Issues with visual discrepancies that exist in the display of emojis across different platforms, operating systems, and applications can affect how the visual language of emojis develops. Though college student participants indicated that they frequently use emojis with people they have strong ties with, they tend to avoid using emojis with some people of strong ties if there are devices with different operating systems involved.

Participants explained that the intentional decision to not use emojis is primarily based on the differences in the display of emojis. The content analysis of smiley emojis found that over half of the emojis had between five to nine differences in how they are rendered by different operating systems and applications, and 35% of the emojis had more than ten differences. The differences in emojis can cause severe miscommunication issues. As discussed in the Results section, several college student participants shared anecdotes on how visual discrepancies have caused miscommunication in formal and informal online interactions.

Issues with interpretation of emojis can also affect how the visual language of emojis develops for different groups of people. College student participants indicated that they avoid using emojis in communication with new acquaintances, professional relationships, and people whom they perceive as significantly older or more mature. One of the main reasons for not using emojis with these relationships in online communication is that more interaction is required before participants can determine the norms of using visual language within those relationships. College students indicated that they avoid using emojis because they do not know what device the message recipient uses and the attitude the recipient has towards emojis. As a new friend becomes a close friend, though, college students might then use a larger range of emojis because they feel more comfortable being “weird” or “goofy.”

College student participants also indicated that they frequently interact with friends using emojis for playful or sarcastic motives. Similar to emoticons, emojis are used by college student as indicators for irony or jokes, or in an attempt to lighten the mood of a situation (Kaye et al., 2016). In online environments, nuances that demonstrate

humor and sarcasm can be particularly difficult to convey or be explicitly communicated. Therefore, it can be concluded that emojis can be used to aid understanding, project personality, and convey tone in online discourse.

Despite the wide range of smiley emojis available to convey different sentiments and different levels of sentiments, college students still occasionally use emoticons, or “the old-school emojis.” The content analysis of Instagram found that about 6% of the messages included the use of an emoticon. College student participants explained that they used emoticons because they are more “low key,” “less dramatic,” and “more chill than emojis.” College students felt that emojis can be too expressive and not representative of the emotion they wish to convey. One participant preferred to use the (:)) emoticon because “there’s no smiley face emoji” that accurately depicts the sentiment without seeming to be sarcastic, while another participant used the same emoticon because “it’s the soft smiling version of the emoji.” Though there are emojis designed to represent a spectrum of emotional expressions, participants still prefer to use emoticons when it comes to certain emotions. For example, one participant explained the (:)))) emoticon is used occasionally because even though there are a variety of emojis conveying smiles and laughs, the participant still felt that there is no emoji that conveys the feeling and sentiment of that particular emoticon. While there are emojis available to express a spectrum of sentiment, the designs can be perceived as too expressive or not expressively accurate. Further research examining how college students depict or perceive visual representations of emotions can help understand why some users prefer to use the smiling emoticon (:)) instead of the various smiling emojis (😊 , 😄 , 😁).

Limitations

As with any other social science research, this research is not without limitations. To begin with, the content analysis of Instagram posts examined only publicly available data. How college students use emojis in social media posts open to the public can be different from how they use emojis in more private online communication settings such as texting. In fact, several focus group participants indicated that their use of emojis in intimate private conversations might be different from how they might use them on Instagram. Getting an IRB approval for analyzing private forms of communication online can be challenging. Still, it will be useful for future research to examine how emoji use differs across different modes of online communication.

The analysis of Instagram posts could only differentiate between individual accounts and organizational accounts based on the researcher's discernment. Since anybody can set up an account with Instagram, it is difficult to confirm whether users are authentic college students. It is also possible that some of the comments analyzed were from weak ties that were more interested in generating reciprocation of interaction instead of providing effective social support (see Figure 8). The interactions between users observed on Instagram does not provide us "the movie of the social support in their lives" (Hobfoll, 2009, p. 94). People of strong ties are more likely to interact using more modes of online communication, or through more frequent face-to-face interactions, which can be difficult to document and study.

Figure 8. Example of comment

whoismaxparker Cool page, check us out
too 😊

The research study design of the content analysis of emojis only analyzed smiley emojis (facial expressions, 😊, 😐, 😞), and did not include hand gestures (💪, ✌️, 👍), which were observed in a notable amount of posts on Instagram and indicated by many participants as one of their frequently used emojis. However, as one of the first empirical studies aimed at systematically examining the design and use of emojis, this research decided to focus on smiley emojis so that a more in-depth examination of smiley emojis could be conducted. The findings of this research should inform future research on other types of emojis including hand gestures.

The lack of research on emojis and development of visual language in online communication was also a limitation to this research. While the relative novelty of emojis may be a factor, existing studies on emojis tend to focus almost exclusively on how emojis are used (Donovan, 2016; Tauch & Kanjo, 2016). Furthermore, technological advancements on cameras, speakers, and microphones in mobile devices and computing systems will only encourage users to share more visual and audio content. Therefore, visual language should be a prominent area of study for future researches.

One of the limitations to the focus group research is that participants were recruited from only one public university in the United States through a convenience sampling method. That is, the sample is not representative of the college population in the United States. Therefore, one should be careful not to generalize the findings from this research to a larger U.S. college population.

Another limitation is that focus groups can be susceptible to false reporting or that reactions could be influenced by the group dynamic (Krueger & Casey, 2009). Also, participants in focus groups sometimes knew each other, which may have an effect on

how they expressed or disclosed their ideas. Even so, this dissertation provides an important starting point to studying how college students use emojis for supportive communication and helps advance research in areas of visual communication, social support, and virtual empathy.

The following section discusses scholarly and policy/practical implications of this research, as well as suggestions for future research.

CHAPTER 6

CONCLUSION

As one of the first studies on emojis, the dissertation explored how college students use emojis for social support and virtual empathy in online communication. The dissertation also analyzed how the visual representation and implementation of emojis affects the development of emojis as a visual language. Results from this research indicate that emojis are used to enhance sentiment and communicate tone like humor and sarcasm. The lack of consistency in how emojis are displayed across different operating systems and applications affects how emojis are used and interpreted. Though college students use emojis to express empathy, they only do so for certain situations and with certain people in their social network. Findings from this research offer several scholarly and practical implications.

Scholarly and Practical Implications

For scholars, this dissertation provides theoretical and methodological frameworks relevant to studying visual communication and supportive communication among college students. First, this study stresses the need for communication scholars to investigate how visual language theories can be applied to understand how graphics are used in online supportive communication. As early adopters of technology, college students use emojis, in particular, emojis of positive sentiment, on a daily basis to convey emotions or empathy in online communication. Therefore, studying how college students use emojis is essential to understand this topic as understanding their emoji use can provide important insight into how emojis and other visual elements are used and how they evolve in this digital media age.

Second, this study suggests scholars studying visual communication should consider the application of visual morphemes proposed in this dissertation as a framework for studying other forms of visual content. Visual morphemes are components that build a visual language, like word roots or prefixes to the English language. Comprehension of visual morphemes can help scholars not only understand the construction of a visual language, but can help identify essential cultural characteristics as well.

Third, the findings of this research suggest that it is important to consider different modes of communication in studying the topic. This dissertation's content analysis and focus groups indicated that emoji use in the context of support communication may differ depending on whether it is a more private or public type of communication. Online interactions such as advice-giving and expressing empathy are carried out more frequently through private modes of communication, which are not publicly available. While studying private forms of communication is more challenging to execute in terms of gaining IRB approval or acquiring enough participants for research, this is something for scholars in this area to take into account in designing their research studies.

Finally, for scholars interested in studying social support, this study suggests that combining multiple methods is useful in understanding a complex and intimate process of social support via online social networks. This dissertation used both quantitative and qualitative approaches (i.e., quantitative content analysis and focus groups) to examining college students' use of emojis in supportive communication online. This mixed-methods

approach helped better illuminate college students' intentions behind using particular types of emojis in online communication.

This dissertation also offers several practical implications. First, this study contends the need for consistency in future design and implementation of emojis. Miscommunication from visual discrepancies of emojis can discourage people from using emojis in online interactions. As the emoji library continues to expand, users may become overwhelmed or fatigued by the amount of choices, interpretations, and representations they have to consider when using emojis.

Second, this study supports efforts by higher education organizations in implementing the use of online social networks to help establish a sense of community with their student body. Many college students indicated that they rely on their online social networks as a source for news and access it frequently to combat boredom. Previous research also showed that online social networks are mediums for helping international students adjust to the United States (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012; Sin & Kim, 2013; Seo, Harn, Ebrahim, & Aldana, 2016). Besides using online social networks to deliver news, higher education organizations can also consider using emojis in informal communication with students to close social distances or to develop a more playful and intimate relationship. Organizations can also consider adopting the use of hashtags, or even visual hashtags, as it is how younger users tend to organize and search for online content.

This study also supports the relevancy of examining visual content in online social networks. Even though Facebook is currently still the largest online social network, younger adult Internet users prefer using visual content platforms, like Instagram and

Snapchat, to stay in touch with their family and friends. As technology continues to advance, the frequency of users sharing visual content will only increase.

Future Research

Few studies have examined the role of emojis in online social networks or addressed the effects visual discrepancies of emojis have on online interactions. Though this study only investigated the visual representations of smiley emojis, future studies should examine how other types of emojis like people (👤, 👩, 👨) or hand gestures (💪, ✌️, 👍) serve as visual cues in online communication.

Future research should also more closely examine how visual differences of emojis are associated with cultural practices of communication. For example the *sleepy face emoji* (😓) is often interpreted by users from Western cultures as an emoji crying. However, in Japanese culture, the droplet depicts a snot bubble, not a teardrop, and is used in manga and anime to represent a character sleeping. While this study did not examine how the designs of emojis have changed with each Unicode update, future studies could study how the redesign of emojis is associated with use and interpretation.

Scholars might consider the application of visual morphemes proposed in this dissertation as a framework for studying other forms of visual content like GIFs, stickers, or Bitmojis. The findings from this study, on the use of emojis between college students and parents, suggest the need for future research on how people from different generations or cultural backgrounds communicate with emojis. This dissertation serves as an initial approach to systematically examine how emojis are used in online communication for social support.

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Appendix A: Codebook for Content Analysis Phase 1 Instagram Posts with #Collegeproblems

Unit of Analysis: Each Instagram entry, caption or response to a post tagged with *#collegeproblems*

Analysis Time Period: November 1, 2015– October 31, 2016

Coding Schemes

[VARIABLE]: Variable name in the Excel coding sheet

- A. [ID] A unique number assigned to each Instagram entry.
- B. [PID] A unique number assigned to each caption or comment for an Instagram entry.
- C. [PT] **Post Type**
 - (1) *Caption*, the original post made by author
 - (2) *Comment*, the response post made by another Instagram user
- D. [Like]: Number of **Likes** associated with the Instagram entry.
- E. [Com]: Number of **Comments** associated with the Instagram entry.
- F. [WP] **Wall Post/Caption** content primarily deals with:
 - (1) *Schoolwork*: addresses topics related to school
 - (2) *Employment*: addresses topics with work or career
 - (3) *Finances*: addresses financial topics or other types of money problems
 - (4) *Family*: addresses topics with familial relationships or situations
 - (5) *Living situation*: addresses homesickness or topics with housing situation
 - (6) *Romantic relationships*: addresses topics with dating or significant others
 - (7) *Social relationships*: addresses topics with friends or meeting new people
 - (8) *Self-expression*: addresses topics about physical appearance or creative activities
 - (9) *Physical health*: addresses topics about sleep, food, and fitness.
 - (10) *Mental health*: addresses topics about stress, anxiety, or other common or serious mental conditions.
- G. [RP1] **Response Post/Comment** primarily shows:
 - (0) none
 - (1) *emotional support*: convey affection, concern, or empathy
 - (2) *informational support*: consists of suggestions, referrals, or facts
 - (3) *esteem support*: communicates agreement, confidence, or validation
 - (4) *network support*: provides companionship or connections
 - (5) *tangible assistance*: offers goods or services

H. [RP2] **Response Post/Comment** also shows:

- (0) none
- (1) emotional support
- (2) informational support
- (3) esteem support
- (4) network support
- (5) tangible assistance

I. [Adv] **Advice** strategy demonstrated in comment (see attached for examples):

- (0) *no advice*
- (1) *bold on record*: delivers advice without regard for face.
- (2) *positive face*: gives advice and reaffirms person's desire to be accepted
- (3) *negative face*: gives advice while addressing a person's freedom.
- (4) *off-the record*: gives advice through indirect language

Sentiment is : (1) the a view of or attitude toward a situation or event; an opinion OR (2) a feeling or emotion.

J. [SoP]: **Sentiment of Post**

- (0) no text
- (1) positive
- (2) negative
- (3) neutral

K. [SoT]: **Sentiment of Text**

- (0) no text
- (1) positive
- (2) negative
- (3) neutral

L. [SoE]: **Sentiment of Emoji(s)**

- (0) no emoji
- (1) positive
- (2) negative
- (3) neutral
- (4) unknown

M. [E1]: Number of positive sentiment emojis in the post.

N. [E2]: Number of negative sentiment emojis in the post.

O. [E3]: Number of neutral sentiment emojis in the post.

P. [E4]: Number of emoticons or other expressive languages found in the post.

Q. [ET]: Primary Emoji Type used in post.

- (0) none
- (1) smileys, people, gesture
- (2) animals & nature
- (3) food & drink
- (4) symbols
- (5) other

R. [ET1] Number of smileys & people emojis in the post.

S. [ET2] Number of animals & nature emojis in the post.

T. [ET3] Number of food & drink emojis in the post.

U. [ET4] Number of symbols in the post.

V. [ET5] Number of other types of emojis in the post.

For **type of emoji**: code according to categories developed by www.emojipedia.com
i.e. smileys & people, animals & nature, food & drink, and other.

For **sentiment of emoji**, code according to: http://kt.ijs.si/data/Emoji_sentiment_ranking/
i.e. positive, negative, or neutral

The following comments are examples of different types of social support:

Emotional support:

auuubbbsss Aye I miss you 🥺💕

Informational support:

cbdublu My bookstore does price matching. If amazon or Barnes and noble or chegg sells/rents it cheaper, they will match it.

Esteem support:

woocommerce_russian.ru Well done

Network support:

realtonyrose If you ever need any help with these txtst professors let me know I know a lot real well @tiennxo

Tangible assistance:

lfg35c Let me know if you need help with the first tickets 🤔

The following comments are examples of different types of advice:

nubilusphoenix Get a better job

Bald on record:

thedaniellealexandra Way to go girl! Get some sleep!!!

Positive face:

realtonyrose If you ever need any help with these txt professors let me know I know a lot real well @tiennxo

Negative face:

cbdublu My bookstore does price matching. If amazon or Barnes and noble or chegg sells/rents it cheaper, they will match it.

Off-the-record:

Appendix B: Codebook for Content Analysis Phase 2 Emoji Representations

Unit of Analysis: Expressional emoji or smiley available on <http://emojipedia.org/people/>

Coding Schemes

[VARIABLE]: Variable name in the Excel coding sheet

A. [ID] A unique number assigned to each emoji.

B. [Date]: Year the emoji was released.

C. [Appl] Is the emoji available on Apple

(0) No

(1) Yes

D. [Gg] Is the emoji available on Google

(0) No

(1) Yes

E. [Twtr] Is the emoji available on Twitter

(0) No

(1) Yes

F. [FB] Is the emoji available on Facebook

(0) No

(1) Yes

G. [FBM] Is the emoji available on Facebook Messenger

(0) No

(1) Yes

H. [Ss] Is the emoji available on Samsung

(0) No

(1) Yes

I. [Win] Is the emoji available on Windows

(0) No

(1) Yes

***For the following items, if morpheme is not present, indicate with (0).*

J. [VM_eye] Number of different rendering for the emoji's eyes observed across the different platforms.

- K. [VM_eyebrow] Number of different rendering for the emoji's eyebrows observed across the different platforms.
- L. [VM_mouth] Number of different rendering for the emoji's mouths observed across the different platforms.
- M. [VM_teeth] Number of different rendering for the emoji's teeth observed across the different platforms.
- N. [VM_tongue] Number of different rendering for the emoji's tongue observed across the different platforms.
- O. [VM_cheeks] Number of different rendering for the emoji's cheeks observed across the different platforms.
- P. [VM_eyeware] Number of different rendering for the emoji's eyeware observed across the different platforms.
- Q. [VM_other] Number of different rendering for the emoji's eyes observed across the different platforms.
- R. [SS] Sentiment score of emoji found on http://kt.ijs.si/data/Emoji_sentiment_ranking/
- S. [Insta] Instagram ranking of emoji found on <https://www.curalate.com/blog/the-top-100-most-popular-instagram-emojis/> **if emoji is not included on the list, indicate with (0)*

Appendix C: Focus Group Protocol College Students and Emoji Use

Focus Group Discussion Guide (February 2017)

I. Introduction/Introductory Questions

- A. Explain that there are no right or wrong answers
- B. Introduce yourself
 - a. Name, level, high school graduation date
 - b. Where you are from and what is your major?

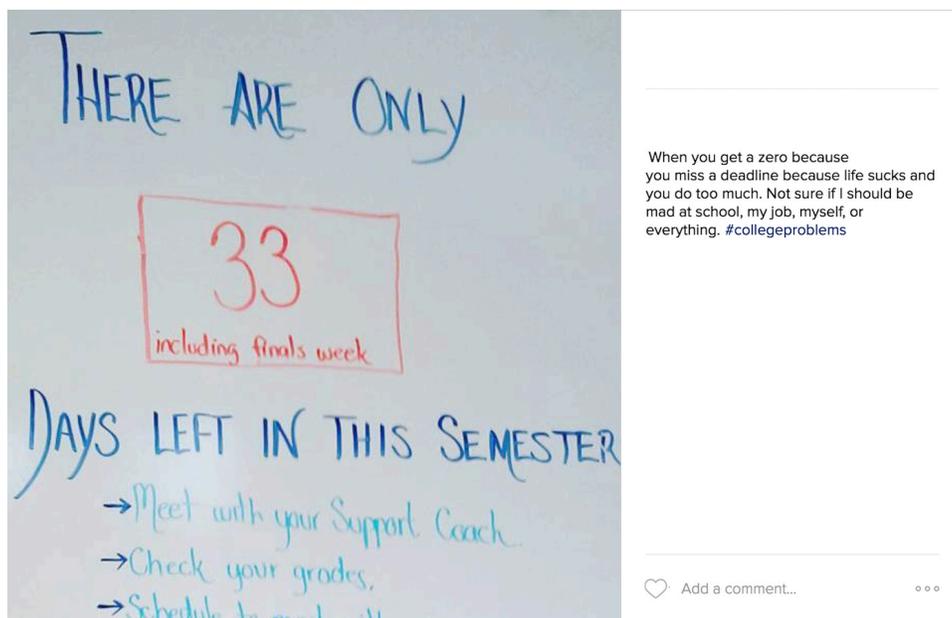
II. Transition Questions

- A. What is your favorite social media to use?
- B. What other social media do you use?
- C. How often do you use Instagram and for what reasons?
- D. How do you use emojis on Instagram or why don't you use emojis on Instagram?

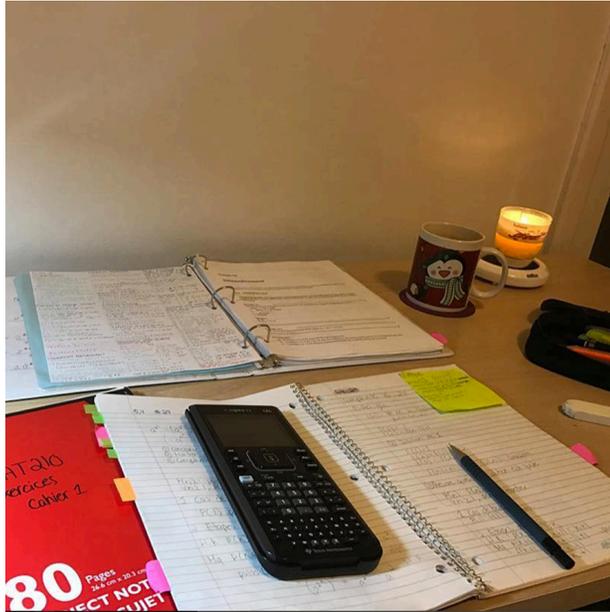
III. Key Questions

- A. Which emojis do you use most frequently? (Draw these out)
- B. How often do you use (these) emojis?
- C. How do you use emojis differently with friends, close friends, family members, etc.?
- D. ***card sorting activity** Take a couple of minutes and sort the emoji-cards according to sentiment, from positive to negative. Explain visual elements you considered when sorting these.
- E. **[SLIDE]** Imagine you see the following post from a friend on Instagram: "When you get a zero because you miss a deadline because life sucks and you do too much."

Write out your answer and indicate which emojis you would most likely use.



- F. [SLIDE] **card sorting activity* Imagine you posted the following photo and caption to Instagram: “Today was a really bad day! I LOST my expensive calculator and I still need to study.” Sort the deck of emojis from most empathic to least empathic response.



Today was a really bad day!
I arrived home only to find
that I LOST my expensive calculator
somewhere at school! i went back
to university and thankfully found it...
So it's midnight and I still need to study.

♡ Add a comment... ○○○

IV. Ending Questions

- A. Has there been a time where you had a miscommunication because of emojis? Share?
- B. Do you notice any differences in how people in your social network use emojis?
- C. Is there a time when it is inappropriate to use emojis?

V. Wrap-Up, Thank You

- A. Is there anything you would like to share that you didn't have a chance to?
- B. Do you have any questions?
- C. Thank you for your time.