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## Table of Contents

Chapter 1:	Introduction .....	1
Chapter 2:	Literature Review.....	5
Chapter 3:	Methodology.....	26
Chapter 4:	Results.....	31
Chapter 5:	Discussion.....	48
Chapter 6:	References.....	58
Appendices:		
	Appendix A: Participant Information Questionnaire.....	62
	Appendix B: Satisfaction with Life Scale.....	63
	Appendix C: UCLA Emotional Support Inventory.....	64
	Appendix D: Modes of Communication.....	67
	Appendix E: Interpersonal Communication Satisfaction Inventory.....	68
	Appendix F: UCLA Relationship Stress.....	71
	Appendix G: IRB Approval.....	72
	Appendix H: Modification IRB Approval.....	73
	Appendix I: Modification IRB Approval.....	74
	Appendix J: Modification IRB Approval.....	75
	Appendix K: Modification IRB Approval.....	76

## Abstract

In stark contrast to In-Person Communication (IPC), Technology Enabled Communication (TEC) presents challenges for interactions due to constraints on the transmission of social cues. This is hugely problematic as TEC increases the likelihood that messages will not be interpreted true to the meaning in which the sender intends. Despite the variety of ways individuals are connected through TEC, it seems that with missing social cues and modalities of communication, there is an overall sacrifice to the full potential of interactions. Instead of hearing and seeing the other, a text may substitute an impulse for communication at the cost of a substantial amount of unrealized social cues. Because the Mentalizing System (MS) and Mirror Neuron Systems (MNS) are central to participating in social interactions, the richest setting for having the ability to anticipate others' intentions through gestural communication, imitation and empathy appears to take place in the context of IPC, with face-to-face interactions. Ultimately, well-being is impacted by how an individual uses TEC. As TEC communication with the identified support person increased, satisfaction with life scores decreased. As anticipated, however, IPC was shown to have a significant negative association with relationship stress in that higher rates of IPC were related to lower rates of stress within the relationship with the identified support person.

*keywords:* Communication Satisfaction, Emotional Support, In-Person Communication, Technology Enabled Communication, Mirror Neurons, Mentalizing System

## **Chapter 1: Introduction**

Talking to other individuals about emotions has been found to be one of the most beneficial methods of emotional support in that it provides the space for reassurance and belonging (Trepte et al., 2015). Talking to others is found to improve positive outcomes in the areas of well-being and having the ability to cushion negative factors such as physical and mental illnesses (Trepte et al., 2015). In today's culture, interpersonal communication occurs via numerous methods, especially when using technology. Technology has presented communication with a robust array of options to use, such as texting, emailing or posting on social media. With communication technology development on a fast track, available research has not been able to keep up with understanding the impact of moving what was once solely an in-person interaction to a virtual space (Dickerson et al., 2017).

Through the use of technology, having a conversation with another individual can happen with a tap on a smart phone from almost anywhere by texting messages back and forth. Substituting in-person interaction with using technology to communicate does alter the dynamics though (Khalis & Mikami, 2018). Technology enabled formats of communication can bestow impediments to the accuracy in deciphering interactions which hinge on having the availability of speech, visual cues, or touch, for example (Dickerson et al., 2017). In the context of a telephone call, communication is faceless, although audible social cues are available in the conversation by way of sound of voice, tone, pitch, volume and even background noise. When

texting, direct messaging or emailing, the interactions typically occur sans audible or visual channels of communication. Alternately, real-time video meetings (e.g., Skype, Zoom, Microsoft Teams), contextually enables a more synchronous opportunity for visual social cues such as facial expressions, body language and gestures as well as contemporaneous audible sounds. For purposes of this paper, communication that happens in ways that include phones or the internet will all be referred to as technology enabled interpersonal communication or TEC. Alternately, when referring to contexts of real, in-person communication IPC will be used.

Challenges in the ecosystem of TEC are that it is emotionally depreciated and imposes a diffusion on the natural broadcasting of social cues and the signaling information that ordinarily would be present during IPC (Okdie et al., 2011). In stark contrast to IPC, TEC presents challenges for interactions due to constraints on the transmission of social cues. This is hugely problematic as TEC increases the likelihood that messages will not be interpreted true to the meaning in which the sender intends. Single sources of social cues, such as only the words in a text message that lacks a face or voice, are unreliable for establishing dependable recognition (Zhao & Li, 2019). It is thru a combination of multiple cues or modalities which may involve “visual scenes, voices, bodies, other faces, cultural orientation and words,” which together form more recognizable emotions (Zhao & Li, 2019, p.3).

Connecting emotionally with other people is at the core of human beings who thrive on social interactions (Mate, 1999). Notably, in western society, there is a hurried way of life that does not offer or strive for optimal conditions of emotional support. Despite the variety of ways individuals are connected through TEC, it seems that with missing social cues and modalities of



communication, there is an overall sacrifice to the full potential of interactions. Underscoring why societal impact on emotional support is of critical importance in human interactions is affirmed by Gabor Mate (1999), “The human brain is a product of society and culture just as it is a product of nature” (p.109). Every type of exposure that an individual may experience in the course of living life, including the circumstances around them in the world, impacts the brain (Mate, 1999). Mate (1999) mentions the term, *Neural Darwinism*, being the concept that an individual’s brain only reaches its peak or optimum circuitry in the most favorable conditions, which includes an emotionally secure and emotionally supportive environment. When the conditions are less than ideal for *Neural Darwinism*, there are adverse effects, one example being the development of attention deficit disorders in children (Mate, 1999). Not only do the stressors and the emotional conditions within the environment during childhood matter, but also as individuals grow and enter adulthood. Emotions never pale in their importance and functioning, which enables mental health through connectedness, thus aiding emotional well-being (Mate, 1999).

Although TEC does successfully provide the ability to exchange information, there remain questions concerning the sensibilities in the emotional content of communication done through TEC. Understanding and optimizing the ability to obtain emotional support in TEC contexts demands greater attention as culture and society continues its ever-rapid, effervescent evolution. It is worth exploring the impact of emotional support individuals experience during interpersonal communication in the context of TEC. Also, worth investigating is whether the emotional support component of communication gets conveyed successfully when connecting

with other individuals through TEC. Additionally, an inquiry into whether cultural conditions of emotional support in TEC are optimal towards the realization of societal Neural Darwinism is in scope. This thesis sought to examine these questions.

## **Chapter 2: Literature Review**

### **In-Person Communication (IPC) versus Technology Enabled Communication (TEC)**

Communication functions as a social tool which individuals use to mutually impact one another mentally and emotionally (Mainieri et al., 2013). This connection that human emotions have with communication being a vital and kinetic set of exchanges as they emote. The interactions of communication rely on changes in a person's facial expressions and physical stance to convey information or meaning about the emotional states which that person is experiencing (Dickerson, 2017). Darwin (1965) posited that face and body movement and energy illustrate the thoughts behind a person's words. He further described emotions as the outward appearance of the relationship between the heart and the brain. Darwin's contributions continue to support and fuel further investigations of the essential role of outward expressions of emotions for positive human health.

Ekman and Friesen (2003), explored the many valuable characteristics provided by an individual's face, one very important feature being that it is the most certain way to identify a person. A face also offers messages about attractiveness, intelligence, age, sex, race, the type of emotions that are being felt, the mood a person is in, and their attitude are all shown in an individual's face. Ekman and Friesen (2003) defined that an individual's face functions as both a signal system and a multi-message system. With sophisticated ability, the signal system and multi-messaging systems, enable human beings to determine accurate findings of emotion made by another individual and also make judgments and conclusions based on those signals. Facial

signals occur both slowly and rapidly and indicate emotions. Some facial signals are static, like the color of a person's skin and the shape of their face. Then there are some facial signals which do change slowly over time, such as the effects of aging, like wrinkles. Rapid facial signals are the result of the muscles in the face, including things like raised eyebrows, or a wink. Emotions which a person feels are conveyed by the rapid signals produced by movement in their facial muscles. Thus, changing the physical appearance of the face. Assessing another person's facial signals shapes communication. This is a feedback loop that occurs naturally. People are able to emphasize and punctuate speech through facial expressions. Examples of these punctuators include a wide-eyed gaze, wrinkling a nose, making a grimace, looking away, or the tilt of a person's head. Facial expressions usually last just several seconds, and some expressions happen so quickly that they are hard to detect, lasting less than a second. These are known as micro expressions, as they happen in an instantaneous and brief moment. Faces also convey messages of non-verbal movements to tell the speaker that they agree, disagree, or are open to hearing more. A head nod of agreement could be as communicative as an eye wink, or a hand that waves as a greeting to say hello or goodbye. Research has revealed that people are able to accurately draw conclusions about emotion from observing rapid facial signaling. Ekman and Freisen (2003) found that not only do people use their face, they also use the rate of speech, sound, tone of voice, the posture they hold, as well as the way they move their arms and hands, legs and feet, to convey information about the state of their emotions. People also experience involuntary internal, physiological changes like heart rate increasing, temperature change, sweating, breathing a sigh of relief, or blushing. These may be observable changes, to some degree, as it

may be easily seen that a person is perspiring, or taking a deep breath to sigh (Ekman & Friesen, 2003).

Communication is bettered by seeing the other person because of the immediate feedback of these types of expressions that come about during interaction (Ekman & Friesen, 2003). Humans possess a natural intrigue with other faces, and even with that, during IPC, individuals do not typically hold eye contact incessantly. There are times during IPC that individuals purposefully do not make eye contact in order to maintain speaking without allowing interruption. Another example is if the person speaking is an authority figure, eye contact is not typically held too long to show acknowledgment of such. Contradicting this notion, an interrogator holds eye contact intentionally for the reason of intimidation. In the case of romantic love, often couples who are still in courtship stare deeply into one another's eyes in a rapturous gaze. There is an intimacy to eye contact and it is often done when attempting to gain a non-verbal look of approval, as well as to gain a mutual gaze (Ekman & Friesen, 2003). These various scenarios of eye contact exemplify the beneficial importance of the visual channel of communication for interpersonal relationships. Eye-contact and absence of eye-contact both communicate different messages in various settings, yet unless the other person can see such visual cues, eye-contact signaling will not have an effect, as is the case in many forms of TEC.

Auditory information is a detailed and important avenue of expression that occurs in the context of IPC settings as well. When a person is listening, there are at least three sources of information from the auditory facet of communication: (1) the words being used, (2) sound of voice, and (3) how rapid the speech is and how many pauses are used, how many words are used

and if the speech gets disrupted (Ekman & Freisen 2003, p.17). A person may even be able to look away during a conversation and miss some facial expression, yet the auditory information can be gathered without a fixed view of that person (Ekman & Freisen, 2003). This could mean that information shared on a phone call, where there is sound without formal visual representation, may have the capability to provide a substantial amount of emotional expression through at least these 3 sound sources. This indicates that a substantial sum of social cues may be successfully exchanged in the context of a phone call. In addition to providing the sound channel of communication, another positive factor in a phone call is the succinctness of it happening live and in real time.

The most ideal communication methods are those that include non-verbal cues, which are correlated with an increased level of relationship satisfaction and also overall life satisfaction (Goodman-Deane et al., 2016). In that category are phone calls, video calls, and real, live, face-to-face communication. Goodman-Deane et al., (2016) suggested that video calls are more challenging to gauge because of the novelty of the method. Individuals who are not familiar with video call platforms are subject to infrequent use, sadly, for the lack of knowing how. This can render video conferencing more challenging than other forms of communication (i.e., phone calls and IPC interactions), potentially leading to poor relationship satisfaction. Furthermore, due to the virtual screen format, and disruption of temporal and spatial aspects, emotional fluency has been found to be reduced in the communication taking place on a video call (Dickerson, 2017). The social cues in the video format of TEC are significantly different compared to live IPC social cues (Dickerson, 2017). This is revealing in the case of TEC, since live video streaming

platforms for communication methods do amplify social cues in good form compared with other options of TEC, which may only have sound or only visual cues and not both. Essentially, IPC is the quintessential predictor of satisfaction across all types of relationships. Significant to bear in mind is that those who increasingly use TEC might find that it competes with IPC. This is due to a tendency in which the more often TEC is used the less often IPC may occur, leading to reduced well-being and a decline in the satisfaction with the relationship (Goodman-Deane et al., 2016).

Overwhelmingly, IPC has been shown to have a central impact on life and relationship satisfaction. Whereas TEC methods such as texting and instant messages are associated with less satisfaction due to their restrictive nature on social cues because of the absence of either auditory or visual modalities. Instead of hearing and seeing the other, a text may substitute an impulse for communication at the cost of a substantial amount of unrealized social cues. This is compounded with the reduced inclination individuals may experience in their desire to connect with IPC as the amount of TEC increases. This is a negative implication of TEC as it, in some cases, replaces real life meetings with other individuals (Goodman-Deane et al., 2016). Though texting has been shown to be a positive means to communicate within friendships and families, Goodman-Deane et al., (2016) cautions that using text messages as a means of communication among friends and family members whose ties are tenuous could aggravate those ties. Text messages between fractured relationships may exacerbate existing problems, leading to poor relationship satisfaction. Not surprising, a common dilemma when it comes to texting is lacking the ability to self-moderate, which leads to harmful and damaging behaviors towards relationships. Interesting and notable, the type of relationship determines the most ideal context

of communication. Some relationships may potentially benefit by the building of deeper social ties through the use of TEC. With that, the sway of any given form of TEC on a relationship is not easily predictable as there are many other factors to consider, such as personality type (introvert or extrovert), as well as amount of time spent using TEC. In short, Goodman-Deane ranked IPC, complimented by the use of landline and cell phone calls, and video calls as being important to satisfaction within friendships and immediate family relationships. In contrast, when it comes to distant friends and extended family, it is video and landline calls that are a positive means to communicate; and across all types of relationships, texting and instant messaging can potentially lead to less satisfaction in the relationship. Conclusively, those methods of TEC which are connected to overall relationship and life satisfaction provided the most generous communication in terms of non-verbal cues, including; IPC, phone and live video contexts (Goodman-Deane et al., 2016).

### ***Social Interaction and Empathy***

Humans learn to regulate emotions through social interactions (Ekman & Friesen 2003). Similar to temperament, which is genetic, regulating emotions is thought to be a learned behavior beginning in infancy. Thus, emphasizing the enormity of importance placed on social interactions with others beginning in childhood as being necessary in structuring a person's own emotional life. Social interaction is necessitated in order to form a healthy and strong baseline of emotion. There is emotional messaging that is transmitted and learned as a person navigates the process of developing emotionally. As children learn by mirroring, to express and communicate



with others, they build on the foundation of emotional regulation that was first laid in infancy (Ekman & Friesen 2003).

Building interpersonal connections is accomplished through the ability to show and feel empathy (Iacoboni, 2007). A human being's capability to do this rests within a large-scale network of the brain's neural system that is committed to sensory-motor integration. During communication, the muscle activity and nerve sensory information merge in the brain (Iacoboni, 2007). The mirror neuron system (MNS) is at work when action takes place in communication (Iacoboni, 2007). In fact, simply seeing others do an activity, such as sipping a drink or generating a facial expression, stimulates the watcher's brain in the same way as if the watcher were doing the activity themselves. Being at the foundation of the brain's social behavior, the MNS links awareness by watching and imitation as a learning method for developing social skills. The human brain learns to perceive what the objectives and intentions of others are through facial expressions, gestures, and body language as well (Iacoboni, 2007).

An essential function of the MNS is to feel the emotional states of others and potentially offer help in response (Iacoboni, 2007). The MNS causes the brain to imitate, and those neurons need to fire in order for empathy to be ignited. This process occurs via observation; thus, seeing is critical to the process. Iacoboni (2007) discusses findings linking empathy and imitation in that the more people imitate each other, the more concern they have for the other person's state of mind and their emotions. This behavior has been referred to as the "Chameleon Effect", which is a phenomenon where people are predisposed to imitate one another (pp. 238-239). These processes put emphasis on the importance of IPC. The imitation process could be impaired

without being able to see the other individual during communication, which could negatively impose limitations on establishing concern for others' state of mind and emotions.

### ***Mirror Neurons and Mentalizing***

The significance of the MNS is central to interpersonal communication in that it connects individuals to others mentally and emotionally (Iacoboni, 2008). Empathy is the way people feel connected through experiences, needs, wants and emotions when socializing and the MNS is the functionality within a person's brain to view and interpret that information. By recognizing emotions in the manifestation of gestures and facial expressions, a person is moved to share the experience that another person is feeling. It is the activity of MNS that prompts recognition of the emotions that match the expressions in the other person emoting (Iacoboni, 2008).

Mainieri et al., (2013) states that within the brain, in addition to the MNS activity that is firing during social interactions, is the activity in the mentalizing system (MS). Facilitating a primitive reflex towards attentiveness and sensitivity regarding the emotions, perspectives and intentions of others, the MS is also known as Theory of Mind (ToM; Seyfarth & Cheney, 2023). During the simulation process of ToM, there is a sort of mimicked conversion whereby the listener infuses both their own mental state with the mental state of the speaker, which leads to an integrated mental state that is shared between the mental states of both parties (Mainieri et al., 2013, p. 303). It is via ToM, or the MS that allows a facsimile of the mental state of the mind of another person (Sperduti et al., 2014). The MS is an adaptor to ensure the realization of strong bonds which are linked to improved success towards proliferation (Seyfarth & Cheney, 2023). Evolution and natural selection favor those with empathy. Limited understanding exists

surrounding how these two systems sync and synthesize information. It is agreed that predictions can be made as to what behaviors an individual may anticipate from the other during an interaction through the combination of both, the MS and MNS (Sperduti et al., 2014).

Mental states such as the feelings, aspirations, and beliefs are understood through the process of mentalizing, whereby another person's psychological state is simulated (Mainieri et al., 2013). Mentalizing consists of two steps: (1) Envisioning the desired intention or idea presented by the communicator. (2) Anticipating actions that may result from the state of mind of that person. This functional social tool is useful in creating meaning as well as shaping and moderating others' mental states (Mainieri et al., 2013).

Communicative intention is a two-part process for the person speaking which involves: (1) The communicators' intention to convey a message through words and gestures to another person. (2) The intention that the person they are expressing the message to will recognize and receive that meaning (Mainieri et al., 2013). By understanding the other person's mental state and intentions, the prospect of that person's behavior can be established or predicted. In short, the MS is the ability to picture the mental and emotional state of what it is like to be in another's shoes; a key component of empathy. Prediction of the other person's intentions may be based on gestures which have been learned through observation and imitation (Mainieri et al., 2013). Neuroimaging studies of social awareness have found both the MS and MNS are connected to emotional and cognitive functions that facilitate empathy between people in successful social interactions (Sperduti et al., 2014). Because the MS and MNS are central to participating in social interactions, the richest setting for having the ability to anticipate others' intentions

through gestural communication, imitation and empathy appears to take place in the context of IPC, with face-to-face interactions.

### ***Technology Enhanced Communication (TEC) and Interaction Quality***

With an understanding of the importance of individuals' experiences of social interactions in the development and refinement of the MS and MNS, it becomes necessary to consider how these systems (which have been shown to be associated with empathy and relationship satisfaction) are stimulated during communication settings in which seeing and or hearing the other person is not included. This inquiry is especially salient in an age of fewer and fewer IPC interactions and increased reliance on TEC methods such as email and texting for communication needs. While social interaction does require that real people are present for a "coherent exchange," the perception and cognitive awareness of an interaction is still taking place even if the other is not present (Sperduti et al., 2014, p.309). This supports the fact that in TEC settings, perceptions and thoughts take place about the content of communication by each individual independently. However, the interaction may not be as favorable due to lack of interacting in the same physically shared space. When examining the outcome of IPC interactions, findings indicate that neural stimulation occurs when seeing another person's face, and also plays a role in empathy as well as cooperation with others. Research points to the fact that the human brain scans for biological motion, meaning that humans may not mirror things that are not perceived as human-like (Simon & Gutsell, 2021). Even in scenarios of IPC interaction, recognizing emotions in other individuals varies from one individual to the next (Simon & Gutsell, 2021). This also raises the question of whether a coherent exchange can occur

through TEC, which confines opportunities to signal others or convey the intended meaning behind communications. For example, conveying an emotional tone through texting, which is absent of verbal cues, can often be full of miscommunication and conflict, potentially damaging relationships (Boutet et al., 2023). A lack of emotional fluency during video communication has been found to occur during communication (Dickerson, 2017). Displacement in physical space and time which occurs with TEC causes a decoupling, or break in social connection, which is disruptive to communication (Dickerson, 2017). The effects and implications of shifting social interactions from IPC settings to TEC settings have not been fully explored. Even under ideal circumstances, IPC often requires optimum conditions that place high demands on processing social cues, gestures and sensory input (Dickerson, 2017). The relevance that IPC and positive outcomes coexist shouldn't ever be underestimated (Goodman-Deane et al., 2016). With all of the possibility of communication getting lost in translation, TEC may be a 'fly in the serum' of communication. Especially when evaluating findings which reveal that not only are relationships of a higher quality, but individuals are also more likely to feel that they are cared about and have a better chance of gaining practical support through IPC over interacting through TEC (Goodman-Deane et al., 2016).

Even prior to the COVID-19 Pandemic that began in late 2019, TEC had become prevalent, and arguably remains, the most common means by which people communicate. Auditory interactions that have occurred in decades past using landline telephones have, in many instances, been replaced with TEC through computers and cellphones. Auditory conversations involve an oscillation between listener and speaker that is a natural part of interactions in which

there is an anticipation of the back and forth flow in communication (Sperduti et al., 2013). Sperduti and colleagues point out that vocal conversations are much more than just listening; there is an element of anticipating the other's intention that is naturally understood via the MS and MNS. Accordingly, the statement can be made that TEC inhibits the organic flow of interpersonal communication which happens in IPC.

### ***Technology Enhanced Communication and a Global Pandemic***

With the life-changing onset of the COVID-19 pandemic creating mandatory social distancing, maintaining interpersonal connections has taken on new parameters and limitations on IPC contact (Lee et al., 2022). This shift came with a general acceptance of the change in communication from IPC to TEC contexts (Dickerson et al., 2017). This new set of requirements for social distance may have induced a paradigm change in how individuals interact with one another (Lee et al., 2022). Of particular concern, the COVID-19 landscape introduced more challenges due to social isolation and the weight of it on mental health. The pandemic changes led to a lessening in opportunities for emotional support with the reduction in prospects for real IPC or contact (Jo et al., 2021).

Research conducted by Jo, Harrison, and Gray (2021) found that social ties were likely lost as a result of individuals reaching high levels of emotional exhaustion, and feeling stressed, coupled with unsuccessful efforts to schedule times with sources of emotional support during COVID-19. In the aftermath of the pandemic, it was found that the informal or looser social ties, such as a mentor that gave advice, were lost due to lack of maintenance (Jo et al., 2021). The assertion can be made that emotional exhaustion during the pandemic played a role in how

individuals chose to, or not, to maintain connections using TEC. Ironically, it was not uncommon during COVID-19 for people to disconnect from others and even lose social ties during a time when emotional support and social connection were crucial in navigating and adjusting to a new way of living (Jo et al., 2021). Changes in the nature of how humans talked and socialized during the global pandemic, as well the quality of emotional support in interpersonal communication may have created deficits via TEC. This thesis seeks to address whether emotional support is available at a satisfying level even though communication via TEC lacks the rich amount of information which is available to the senses during IPC interactions. It is hypothesized that without aspects such as facial signaling and expressions, hand gestures, sounds in the others' voice like their tone or volume, emotional support may be less detectable in the interactions which take place by way of TEC.

### ***Technology Enhanced Communication and Empathy***

Some real challenges of TEC are the planning required to schedule time to connect and also technical difficulties that arise. These obstacles increase the amount of effort required to obtain emotional support through TEC (Jo et al., 2021). This makes the prospect of receiving empathy online a type of delayed gratification when sought through TEC. When interacting in a context with a single modality of communication such as a text, miscommunication is likely especially in terms of the emotional tone leading to damage to the relationship (Boutet et al., 2023). Many people have been able to assist the text context by including a friendly cartoon face that mimics emotional expressions, commonly called an emoji (Boutet et al., 2023). Used as a symbol to give a visual cue to an otherwise faceless message, an emoji comes in a variety of

emotional expressions, such as a smiling happy face or a face with an expression of confusion (Kaye et al., 2021). A discussion of TEC, emotions and empathy would be remiss without acknowledging the use of communication tools such as ‘emojis’ and ‘memes’ which are often interjected into a text or an email. More recently, ‘emoji’s’ and ‘memes’ have become a common part of the culture of TEC. When using an emoji of a face in TEC, it has been shown that it aids to function in place of a facial expression and helps set the emotional tone (Boutet et al., 2023). However, even with the use of emojis, variables such as context and culture can leave interpretation of emojis to be unclear or inconsistent with what the sender intended (Boutet et al., 2023).

Mememes, which gained popularity beginning in the 1990’s in the digital realm, rapidly influence culture in the online context (Shifman, 2013). Richard Dawkins (2016), introduced the concept of a ‘meme’ back in the late 1970’s as a measure of current culture that gets repeated or imitated over and over in the culture of society. The concept is similar to a gene or DNA molecule that replicates through interpersonal interactions. Mememes can take many forms, such as songs, ideas, or fashion (Dawkins, 2016). In the case of TEC, mememes are often sent as funny messages, quotes, or some aspect of pop culture in the form of a picture or cartoon. A ‘meme’ can help communicate and emphasize a certain mood or a feeling and has been adapted into TEC to add meaning. Having the ability to be dispersed via TEC, a meme in the digital world is swiftly proliferated and is rapidly replicated in online contexts. A meme is typically utilized for intense emotional and dramatic effect (Shifman, 2013). Mememes offer glimpses into current culture that makes utility of them in communications. The mirroring of mememes, by way of



replication and mimicking, is a point of contention among some as to the impact that they impart on the social atmosphere or culture on TEC platforms and contexts (Shifman, 2013).

### ***The Role of Social Networking Sites (SNS) on Perceived Emotional Support***

Dependent on the type of relationship, effects and the influence of social networking sites (SNS) (such as Facebook) may be positive or negative (Goodman-Deane et al., 2016). It has been found that the impact of SNS as the context for social interactions results in a reduction in overall satisfaction associated with social networking itself (Goodman-Deane et al., 2016).

Possibilities could include whether feedback on the SNS is positive or negative for a particular interaction, level of introvert or extrovert traits, and even the intensity of the time spent on the SNS (Goodman-Deane et al., 2016). Other research suggests that interactions in most friendships that connect online, such as Facebook, are friendships that have already been established in an IPC context (Khalis & Mikami, 2018). In IPC friendships occur when both people are reciprocally intimate, offer support and have the capacity for resolving conflicts (Khalis & Mikami, 2018). Interesting to compare it to an in-person friendship, it has been found to be less difficult to start a conversation with a stranger online. While interacting with strangers online may provide a somewhat superficial level of acceptance, it is not the equivalent to forming an intimate friendship through IPC, which necessitates a greater attempt (Khalis & Mikami, 2018). In particular, Facebook is one of the SNS that has been shown to host unique social phenomena that may include psychopathological behaviors in some (Khalis & Mikami, 2018). These findings are in some types of relationship that display high levels of self-disclosure and narcissism among strangers, resulting in negative feelings (Khalis & Mikami, 2018).

Additionally, the use of SNS has also been determined to be connected with a negative pressure on a person's well-being, which may be related with distraction from social media and the tendency to compare oneself negatively to others (Goodman-Deane et al. 2016). Online social networks do enable potentially broad networks for users to communicate through TEC. Since SNS are set up to connect people to a larger social circle, it would seem ideal for socializing, yet there are pros and cons. At the forefront of the focus on SNS is well-being, which has been shown to be impacted by both positive and negative factors. In this way, emotional support online involves a dynamic set of factors. To the detriment of the relationship, in some instances, online interaction such as through SNS is thought to reinforce and encourage being a replacement for IPC time spent, which ultimately is damaging to relationships and emotional well-being (Goodman-Deane et al., 2016).

Despite ample opportunity for socializing through SNS, getting certain types of support may not be so easy, depending on which dimension of social support is needed; informational, instrumental, or emotional support (Trepte et al., 2015). Informational support, such as answers to questions can occur via IPC or TEC, yet may be easier to access on social media communities due to a larger circle of friends and acquaintances that might be reached online instantly at any location. On a SNS, a person may also be able to reach coworkers and acquaintances that normally would not be in their social circle. The added benefit online is being able to get questions answered quickly and from online connections deemed trustworthy by the user (Trepte et al., 2015).

Not every person in a social circle would necessarily be available or the appropriate person to seek emotional support from. Emotional support is usually a part of primary relationships for both parties, versus informational support which can come from a much broader network of social contacts (Trepte et al., 2015). Emotional support provides positive affirmation via empathy, a sense of belonging, emotional reassurance, as well as the chance to discuss feelings. Even though it is easy to acquire weak social ties online, referred to as social capital, the bonding of strong ties via social capital networking online is much more challenging to gain when attempting to build or maintain relationships in online settings. Physical proximity is particularly necessary for instrumental support to take place (Trepte et al., 2015). There are numerous factors which contribute to the nature and quality of various relationships people engage in. This study will seek to gain a clearer understanding of which settings are the most favorable for satisfying emotional support through interpersonal communications within a person's social circle.

A critical facet of gaining emotional support requires the individual to disclose personal information in order to make known that they have the need for social support. "A certain amount of intimacy among the interaction partners has been shown to be a prerequisite for emotional support" (Stokes, 1983 as cited in Trepte et al., 2015, p.79). This makes access to emotional support have higher stakes, as one must self-disclose and also trust the other person or persons with such personal content. Making a sincere request for emotional support can be more difficult in online social media settings in which there is often a bias towards positivity (Trepte et al., 2015). Positivity bias is the preference for positive online content and adversity toward

negative content. This positivity bias may inhibit or prevent the ability to get emotional support for situations seen as not positive.

### ***Communication Satisfaction***

Fulfillment of positive expectations is the key outcome when assessing communication satisfaction. Hecht (1978) described that when positive expectations become fulfilled, satisfaction will result. Therefore, the measurement of fulfilling or satisfying communication at the individual level is based on a self-determined expectation of satisfaction in a given exchange of communication. The level of satisfaction with communication in interpersonal relationships is affected by factors such as the person's own ability to interact with others, their social skills and state of psychological well-being (Sergrin & Taylor, 2007). A positive relationship with another person has been linked to a measurable sense of well-being (Segrin & Taylor, 2007). These indicators support the fact that human beings are motivated intrinsically to communicate in a satisfactory way in their interpersonal relationships as it contributes to their own well-being. For purposes of this study, the measure of satisfaction with interpersonal communications includes the participant's evaluation of communication quality in any interpersonal interactions with friends, family and loved ones.

### ***Engagement in TEC versus IPC***

Another important aspect to consider is the influence that total time spent engaged with technology has on a person's health and well-being. Perhaps that person does not have the motivation to seek IPC and becomes more and more likely to stay in their 'technology bubble' the more they reside there. Communication technology impacts life and relationship satisfaction

when a person replaces what would be a real, in-person relationship with a technology-mediated relationship (Goodman-Deane et al., 2016).

### ***Engagement with TEC and Well-being***

Evidence has successfully correlated a person's physiological and psychological well-being with the quality of their relationships and also their quality of life (Segrin & Taylor, 2007). Association has been made with social skills and psychological well-being, which is ascribed to six factors: "life satisfaction, environmental mastery, self-efficacy, hope, happiness and quality of life" (Segrin & Taylor, 2007, p. 641). Those who experience more loneliness or whose level of social skills is less adept may indicate the likelihood of that individual becoming compulsive in using the internet, resulting in a reduction of well-being (Goodman-Deane et al., 2016).

Challenging this notion is the argument that many relationships begin with an online meeting and facilitate well-being. Although there remain questions surrounding the connection of those who are more socially connected, they are also the same individuals that were more likely to use TEC in the first place. Further complicating these variables is the finding that, unlike the use of computers, persistent cell phone use leads to higher stress and lowered satisfaction in family relationships. Finally, depending on whether feedback received on SNS is positive or negative, it is a mediator of a person's well-being, effectively putting time spent on SNS correlated with well-being connected to the type of interactions experienced. Ultimately, well-being is impacted by how an individual uses TEC. A unique outcome to the use of SNS is a negative impact on an individual's well-being as it fosters engaging in behavior that is distracting and the tendency to compare themselves to what other individuals are posting (Goodman-Deane et al., 2016). With

evidence of time spent online having a correlation to well-being, life and relationship satisfaction, this study will include a grouping variable to evaluate the level of online and offline use for modes of communication exchange in relationships.

### **Present Study**

The goal of this thesis was to determine if satisfaction in the emotional support component of interpersonal communication is affected more positively by IPC settings over TEC settings. Additionally, this study evaluated correlations between satisfying communication and emotional support. The context of communication was examined to determine which mode of communication offered the most satisfying communication. The results of this study may contribute to the evolving integration of human emotional support needs with the advancement of connectivity through TEC. Understanding more about which settings are preferred in order for people to achieve satisfying emotional support and satisfying communication will be enlightening for further research in maintaining the integrity of humankind as science and technology accelerates abilities and opportunities to connect.

The research questions guiding this thesis were: (1) Can satisfying interpersonal communication occur when it is not IPC but rather via TEC? (2) Does the emotional support component of communication get conveyed successfully through TEC? (3) Do the current conditions of communication as a culture sustain emotional support that enables Neural Darwinism?

The following hypotheses were tested: 1. Respondents reporting engagement in IPC, as opposed to TEC, will report a higher perception of emotional support. In other words, the

perceived level of emotional support is greater in IPC contexts compared with TEC contexts. 2.

IPC contexts have a higher perception of communication satisfaction over TEC contexts.

## Chapter 3: Methodology

### Participants

A total of 179 participants were recruited through posting electronic flyers through social media and through emails. Online recruitment was facilitated via platforms such as LinkedIn, Instagram, Reddit and Facebook as well as mass emails to students through the university. Participants were asked to take part in this study by completing an online survey. This was a quantitative survey comprised of 5 sections. No compensation was offered. Surveys were self-administered. The target sample size was N=200, of which a total of 179 completed surveys were received.

Participants were chosen by self-selection. Requirements to participate included that they must be an adult, aged 18 years or older. All genders were included and were comprised of male, female, and non-binary individuals. The survey sought to include as broad a range of demographics as possible to include as diverse a range in the age, gender, ethnicity and profession of participants as possible. There were no limitations on who could complete the survey other than that they must be 18 years old. Participants were not harmed and were able to choose not to finish the survey without penalty.

The total sample size of 179 was comprised of 138 females (77.1%), 36 males (20.1%), and 5 non-binary participants (2.8 %); ages ranged from 18 to 76 years. A total of 126 (70.4%) participants worked full time, 27 (15.1%) worked part-time, and 26 (14.5%) were currently unemployed. Approximately 41% (n = 71) of the sample reported being married, another 41% (n



= 71) reported being single and never married, and the remaining 16.2 % (n = 21) were single yet previously married. The sample can be described as highly educated with 39.1% (n = 70) receiving a Graduate degree, 35.8% (n = 64) receiving a Bachelor's, 21.7% (n = 39) with between an Associate's degree and GED, and 3.4% (n = 6) receiving a professional certification or vocational training. A majority of the sample identified as White (72.5 %, n = 124), followed by Mixed (8.8 %, n = 15), Hispanic/Latino (5.3%, n = 9), American Indian/Alaska Native (4.7%, n = 8), Black/African American (3.5%, n = 6), and Asian (4.7%, n = 7). Participants came from a variety of countries, including the USA, the UK, Mexico, Japan, Poland, Finland, Belarus, Norway, Sweden, Scotland, and Italy.

## **Measures**

### ***Demographic Questionnaire***

Participants completed a demographic background questionnaire which was later used to create grouping variables (see Appendix A). The questions asked the participant's age, gender, employment status and ethnicity. As well as a question which asked the participant to self-report what percentage of total time they communicate online and offline. These percentages were categorized according to the ratio of online and offline engagement in communication as an independent variable in the study.

### ***Satisfaction with Life Scale (SWLS)***

Satisfaction with Life Survey (SWLS; Diener et al., 1985; Pavot & Diener, 1993) was utilized to establish each participant's general outlook and used as a grouping variable (see Appendix B). The SWLS is a 5-item scale designed to assess the cognitive component of

subjective well-being. Items such as “*In most ways my life is ideal*” are rated on a 7-point Likert-type scale, which can be averaged such that higher scores indicate greater life satisfaction. Internal consistency reliability for the SWLS was 0.87 in a sample of undergraduate students (Diener et al., 1985), and ranged from .91 to .94 in adult samples of Anglo-Americans and Asian-Americans (Boehm, Lyubomirsky, & Sheldon, 2011).

### ***UCLA Social Support Inventory***

Sixteen items taken from the perceived emotional support portion of the UCLA Social Support Inventory (UCLA-SSI, Dunkel-Schetter et al., 1986; Schwarzer et al., 1994) were used to measure emotional support, expressions of encouragement and reassurance, expressions of love and care, expressing respect, acceptance and approval, expressions of empathy and understanding, and listening (see Appendix C). The UCLA measure was designed to examine three dimensions of social support: informational, instrumental and emotional support. The questions were used to assess the emotional support respondents received in their interactions with their support person. Two items relate to support relationships. Five items center on desired emotional support. Five items measure received emotional support. The remaining four inventory items measure emotional support satisfaction. These questions evaluate emotional support and look at behaviors concerning it (Dunkel-Schetter et al., 1986; Schwarzer et al., 1994).

### ***Modes of Communication***

A set of items were used to determine the mode and frequency of communication with the support person (see Appendix D). Levels of perceived emotional support in various modes of

communication (i.e., IPC, phone calls, texting, messaging through social media, video call, and other) were used to determine which may be most favorable for desired outcomes. The ‘other’ option allowed respondents to provide another communication mode which may not be listed. For each identified communication, respondents reported frequency of use on a scale from *daily*, *weekly*, *monthly*, *less than monthly*, or *never*.

### ***Interpersonal Communication Satisfaction Inventory (Com-Sat)***

The Hecht Interpersonal Communication Satisfaction Inventory (Com-Sat) measures satisfaction with communication (Hecht, 1978, see Appendix E). Hecht (1978) reported that the level of satisfaction a person feels is an internally reinforced set of stimuli and best determined by answering questions that establish levels of agreement by using 19 items with a 7-point Likert scale (1 = *strongly agree* to 7 = *strongly disagree*).

### ***Levels of Stress***

Five questions were taken from the UCLA Social Support Inventory to assess the level of stress in the relationship with their support person (see Appendix F). Since all relationships involve times where conflict or disagreement may arise, these questions are included to factor in stress in emotional support and satisfaction in interpersonal communication.

### **Design and Procedure**

Participants were asked to complete a brief, one-time, electronic survey in Qualtrics. The Qualtrics survey was accessed through an electronic link. The approximate time needed was around 10-15 minutes. Participants could take the survey in private, on their own device, and at their own convenience. Digital flyers that included the survey link were created and sent out via

email and social media posts in order to recruit adults to take the survey. The survey required participants to communicate with other adults and be at least 18 years of age or older.

Submissions were anonymous. The participants were encouraged to share links for the survey within their social networks.

Using results from the survey to determine grouping variables, participants were categorized according to their answers to the demographic background questions. The Personal Communication Satisfaction Survey will determine how participants feel in terms of the level of satisfaction in the communication they have with the person with whom they communicate with the most. Analyses examined correlations with both emotional support and communication satisfaction, as well as satisfaction with real IPC as well as TEC contexts. Ultimately correlations with emotional support, satisfying communication and context for both were evaluated.

## **Chapter 4: Results**

Data analyses were conducted as follows: Descriptive statistics summarized major study outcomes related to overall satisfaction with life, quality of emotional support and communication satisfaction. Emphasis was placed on identifying whom respondents sought support from, as well as the frequency, and forms of communication (i.e., in-person, phone call, text message, email, private message, public post, and video chat) utilized by respondents to interact with their support person during the past three months. Next, three correlation analyses were conducted to examine the associations among major study variables with: 1. IPC frequency, 2. TEC frequency, and 3. the frequency of each of the specified forms of communication with the identified support person during the past three months. Informed by significant associations documented within the correlation analyses, regression analyses were used to determine the predictive ability of the frequency of IPC and TEC communication on relevant outcomes. Lastly, analyses of variance techniques (ANOVAs) were used to document whether mean outcome scores significantly differed as a result of two separate grouping categories: 1. Identified Support Person and 2. Living Status (i.e., yes, no, sometimes) with the identified support person.

### **Description of Study Variables**

Prior to examining associations among major study variables, it was important to describe respondents' overall frequency of IPC, frequency of technology enhanced communication, as well as their satisfaction with life, quality of emotional support, and communication satisfaction. Table 1 presents the range, mean, and standard deviation of major

study outcomes. The results of this study show that participants spent an average of around 65% of communication in real IPC settings. The TEC context was utilized just under 40% of the time on average.

Table 1. *Descriptives of Major Study Outcomes (n = 179).*

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>SD</b>
Percentage of IPC with Support Person	0.00	100.00	65.35	33.22
Percentage of TEC Communication with Support Person	0.00	100.00	39.64	33.98
Satisfaction with Life Scale Total Score	6.00	35.00	23.56	7.00
Desired Emotional Support Total Score	0.00	21.00	13.34	3.94
Received Emotional Support Total Score	7.00	25.00	20.70	3.89
Emotional Support Satisfaction Total Score	3.00	40.00	33.19	7.40
UCLA Emotional Support Inventory Total Score	4.00	85.00	65.72	14.81
Interpersonal Communication Satisfaction Inventory Total Score	7.00	132.00	107.03	21.07
Relationship Stress Total Score	0.00	16.00	5.60	3.53

*Note.* IPC – In-person communication with identified support person during the past 3 months. TEC – Technology enabled communication with identified support person during the past 3 months.

### ***Identified Sources of Support, Communication Frequency, and Communication Satisfaction***

Table 2 shows that 37.4% of participants identified their spouse as their support person. Romantic partners made up close to 15% as the support person. Friendships wrung in a bit stronger at 27% of participants stated their support person is a friend. As well, a relative was the support person for 17.2% of the participants. This being very vague, the general assumption is that this would be a relative other than a spouse. Interesting and positive in the sense that it is proactive self-care, three participants identified their therapist as their support person. Another single participant reported God as their support person. And there were two participants that said they did not have anyone that they talked to for support.

Table 2. *Identified Support Person (n = 179).*

	<b>Frequency</b>	<b>Percent</b>
Spouse	65	37.4
Romantic Partner	26	14.9
Relative	30	17.2
Friend	47	27.0
Therapist	3	1.7
God or Higher Power	1	0.6
No Support Person	2	1.1
<b>Total</b>	179	100

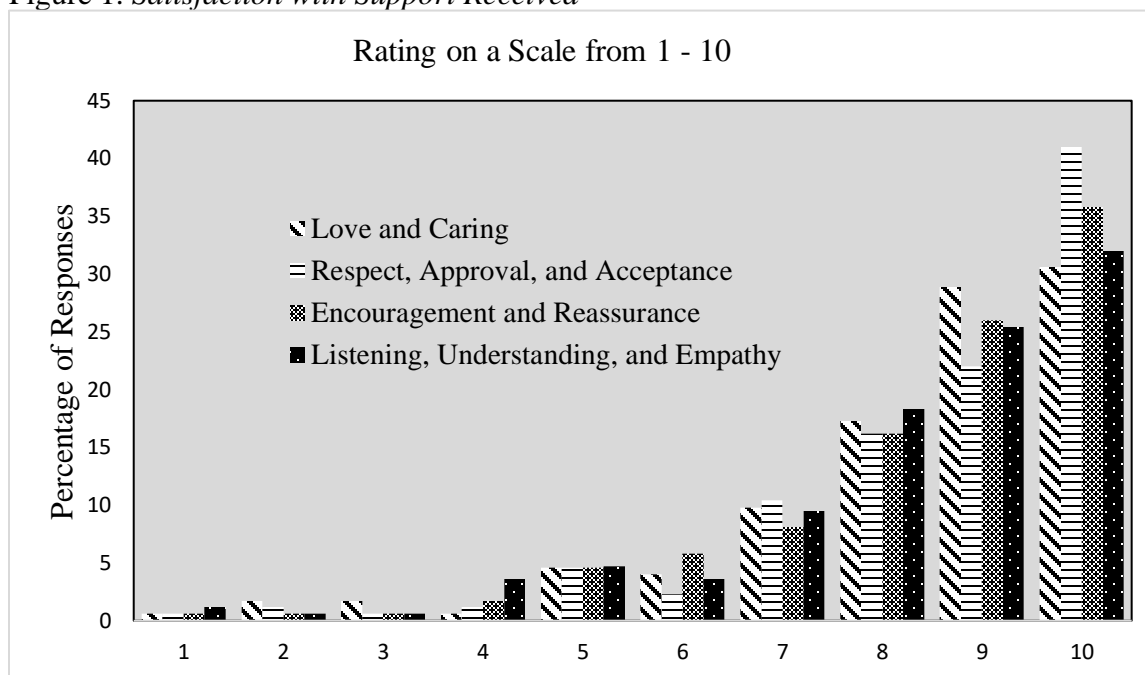
Though not depicted in Table 2, it is worth mentioning that 54% percent of the sample (n = 95) live with their identified support person, 41.5% (n = 73) do not live with their support person, and 4.5% (n = 8) reported living with their support person *sometimes*.

Table 3 depicts the frequency which participants reported communicating with their support person, with the largest majority of participants, 69.7% reporting they did so daily. Communicating several days a week was the frequency for 15.4 %, and only once a week for 8% of participants. The smallest percentage of participants, .6% reported communicating once a month. And finally, 1.7% percent of participant communicated with their support person less than one time per month.

Table 3. *Communication Frequency with Identified Support Person (n = 179).*

	<b>Frequency</b>	<b>Percent</b>
Everyday	122	69.7
Several Times a Week	27	15.4
About Once a Week	14	8.0
Several Times a Month	8	4.6
Once a Month	1	0.6
Less Than Once a Month	3	1.7
<b>Total</b>	179	100

Figure 1. *Satisfaction with Support Received*



*Note.* A rating of 1 is *strongly dissatisfied*, a rating of 5 is *neutral*, and a rating of 10 is *strongly satisfied*.

### ***Frequency of Specific Types of Communication Used to Communicate with Support Person***

Figures 1 through 8 demonstrate the frequency of various modes of communication participants reported using to communicate with their support person. Interestingly, Figure 1 shows that the largest group of participants, 61% said that they never communicate in-person. Only 5% reported IPC on a daily basis.



Figure 2. *Frequency of IPC with Identified Support Person.*

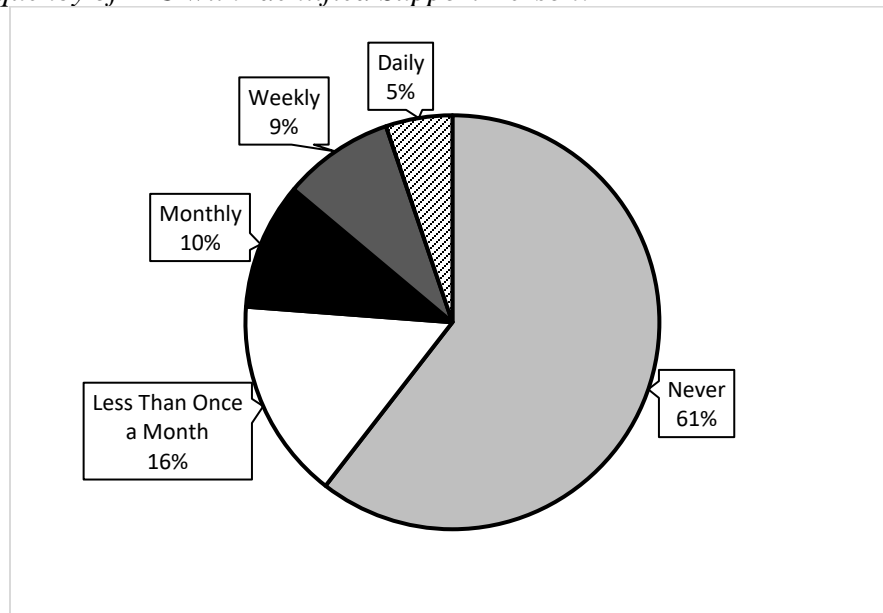


Figure 3. *Frequency of Communication via Phone Call with Identified Support Person.*

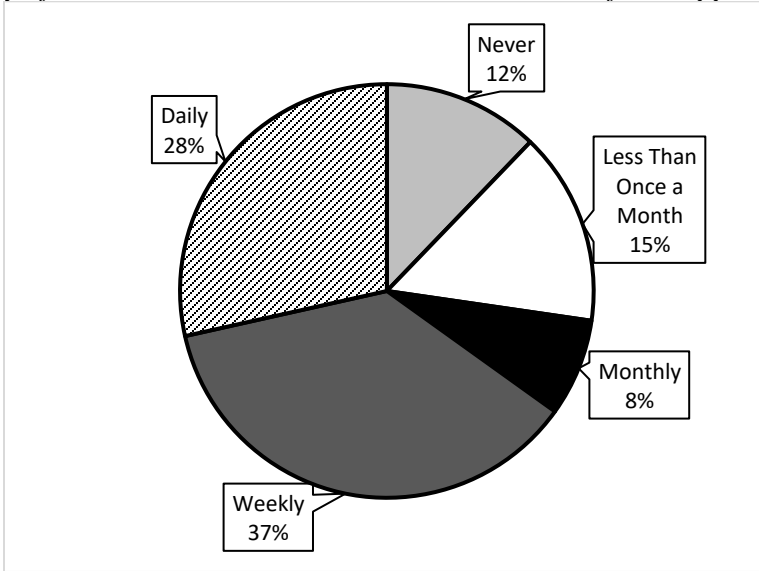


Figure 4. *Frequency of Communication via Text Message with Identified Support Person.*

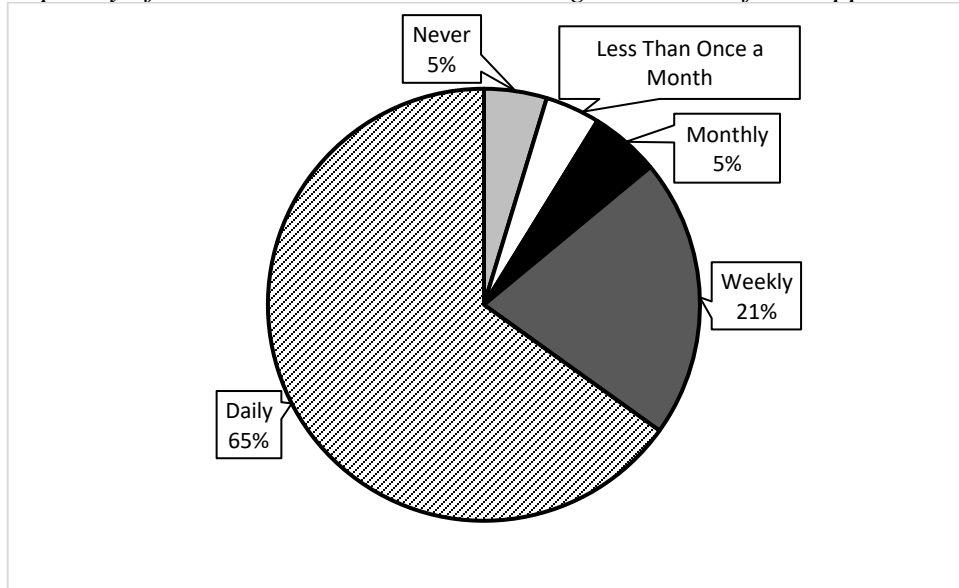


Figure 5. *Frequency of Communication via Email with Identified Support Person.*

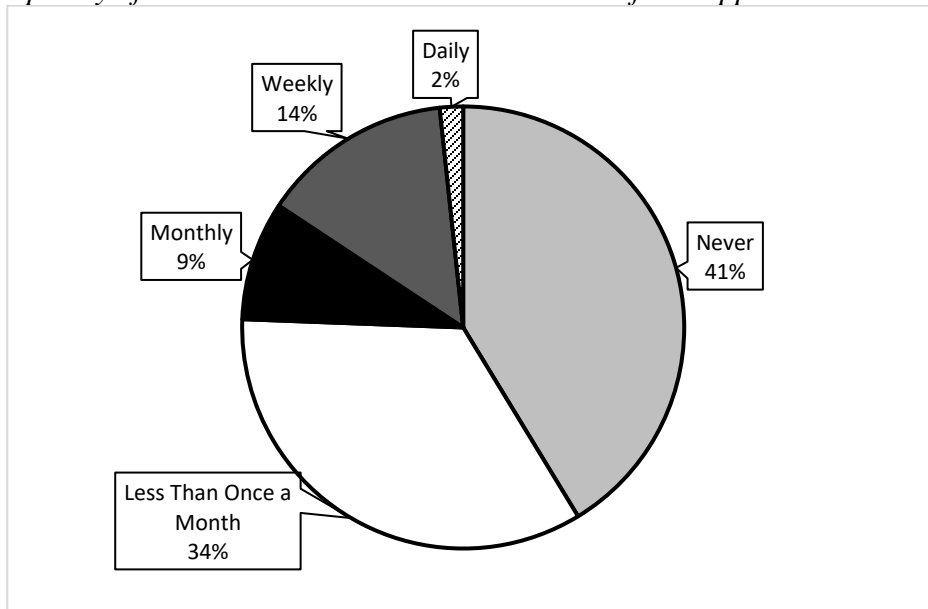


Figure 6. *Frequency of Communication via Private Message Through Social Media (i.e., Snap Chat, WhatsApp, Instagram) with Identified Support Person.*

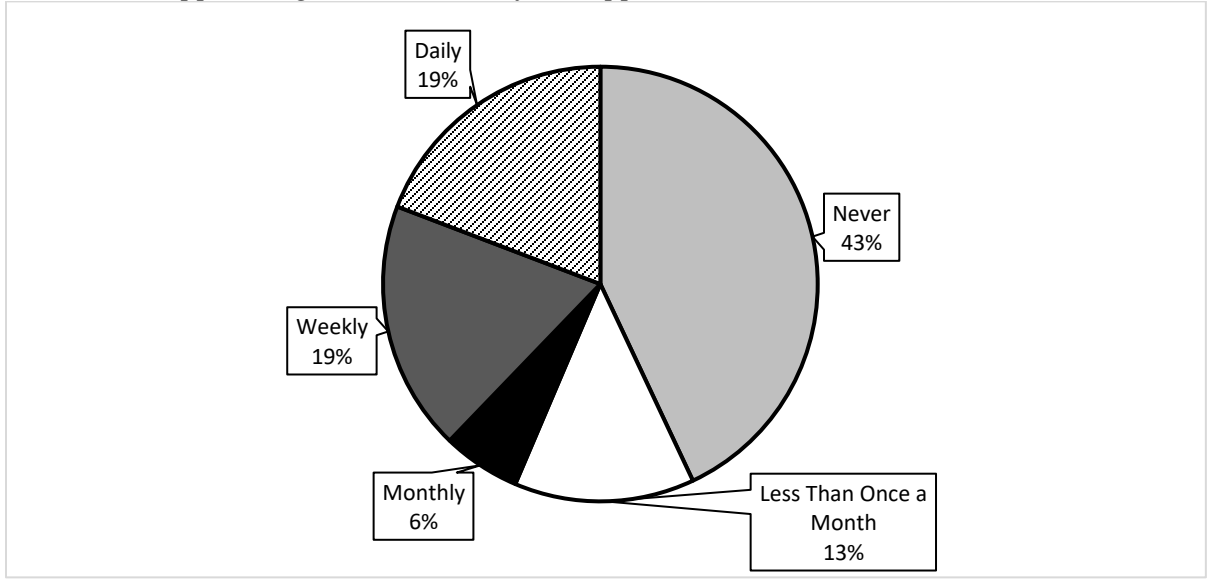


Figure 7. *Frequency of Communication via Public Post Through Social Media (i.e., Snap Chat, WhatsApp, Instagram) with Identified Support Person.*

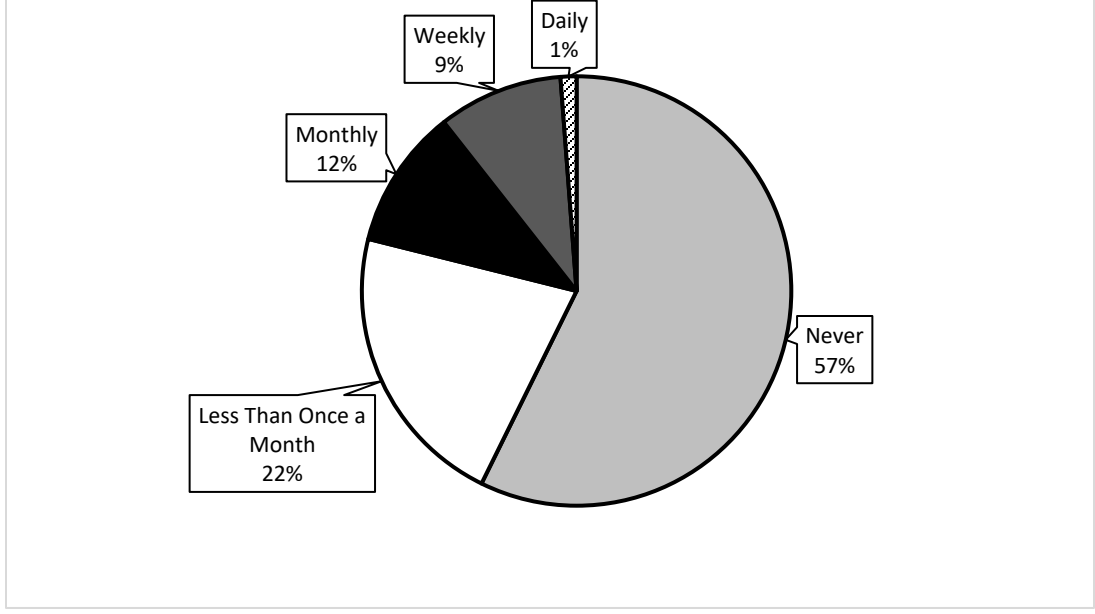
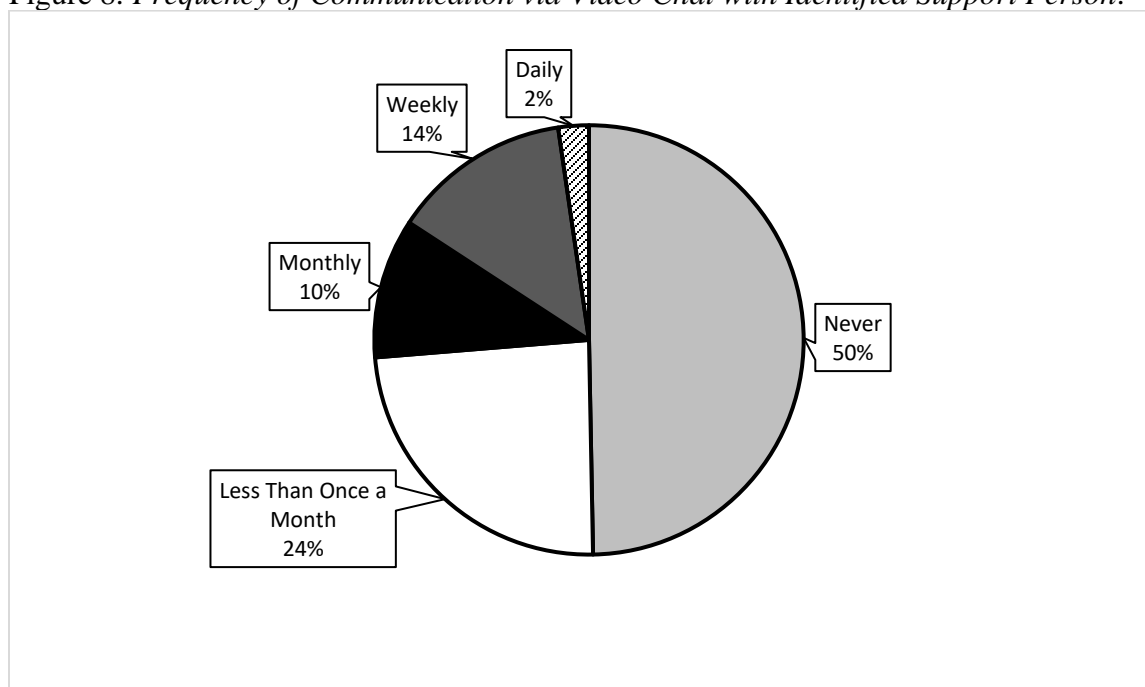


Figure 8. *Frequency of Communication via Video Chat with Identified Support Person.*



### **Associations Among Major Study Variables**

The main objective of this thesis was to explore the following research questions: (1) Can satisfying interpersonal communication occur when it is not IPC but rather TEC. (2) Does the emotional support component of communication get conveyed successfully through TEC? (3) Do the conditions of communication as a culture sustain emotional support that enables Neural Darwinism? This section of the thesis presents the results that specifically relate to these questions.

Prior to discussing the association of IPC with study variables, it is worth highlighting the associations documented among study outcomes. Though not a major focus of the current study, data results contained in Table 4 confirm expected significant associations among measures of emotional support, emotional support satisfaction, interpersonal communication, and relationship

stress. Satisfaction with life was shown to have a significant positive correlation with three emotional support outcome measures (i.e., received, satisfaction, and the UCLA Inventory) and interpersonal communication such that an increase in satisfaction with life was associated with an increase in emotional support and interpersonal communication. Desired emotional support was also found to have positive correlations with received emotional support and the UCLA Inventory. Received emotional support and emotional support satisfaction both resulted in significantly strong associations with the UCLA Inventory and interpersonal communication. Similarly, the UCLA Inventory had a significantly strong relationship with interpersonal communication. Lastly, relationship stress was shown to have significant negative associations with received emotional support, emotional support satisfaction, the UCLA Inventory, and interpersonal communication. In essence, as each emotional support measure and interpersonal communication increased, relationship stress decreased for this sample.

In addition to displaying significant correlations among study outcomes, Table 4 highlights the associations of IPC frequency with measures of emotional support, emotional support satisfaction, interpersonal communication, and relationship stress. Significant positive correlations were documented between IPC and satisfaction with life and received emotional support. In short, as IPC with the identified support person increased, satisfaction with life and received emotional support scores increased as well. Surprisingly, IPC was shown to have a positive association with relationship stress such that as the frequency of IPC with the identified support person increased, relationship stress scores for this sample increased.

Table 4. *Correlations Among Frequency of IPC on Outcomes (n = 168).*

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>1</b>	% of IPC	--							
<b>2</b>	Satisfaction with Life Scale	<b>.26**</b>	--						
<b>3</b>	Desired Emotional Support	.10	-.12	--					
<b>4</b>	Received Emotional Support	<b>.15*</b>	<b>.35**</b>	.18*	--				
<b>5</b>	Emotional Support Satisfaction	.01	<b>.30**</b>	-.04	<b>.76**</b>	--			
<b>6</b>	UCLA Emotional Support Inventory	.11	<b>.22**</b>	<b>.39**</b>	<b>.89**</b>	<b>.89**</b>	--		
<b>7</b>	Interpersonal Communication Satisfaction Inventory	.01	<b>.33**</b>	.02	<b>.65**</b>	<b>.70**</b>	<b>.67**</b>	--	
<b>8</b>	Relationship Stress	<b>.24**</b>	-.11	.11	-.38	<b>-.54**</b>	<b>-.44**</b>	<b>-.67**</b>	--

Note. \*\*p < .01; \*p < .05; IPC with identified support person during the past 3 months.

Table 5 highlights the association of technology enabled communication (TEC) frequency with measures of emotional support, emotional support satisfaction, interpersonal communication, and relationship stress. A significant negative correlation was documented between TEC communication and satisfaction with life. As TEC communication with the identified support person increased, satisfaction with life scores decreased. Remarkably, frequency of TEC communication with the identified support person was shown to have no significant associations with any emotional support outcome, interpersonal communication, nor relationship stress.

Table 5. *Correlations Among Frequency of Technology Enabled Communication on Outcomes (n = 168).*

		1	2	3	4	5	6	7	8
1	% of TEC Communication	--							
2	Satisfaction with Life Scale	-.29**	--						
3	Desired Emotional Support	.09	-.12	--					
4	Received Emotional Support	-.02	.35**	.18*	--				
5	Emotional Support Satisfaction	-.02	.30**	-.04	.76**	--			
6	UCLA Emotional Support Inventory	.01	.22**	.39**	.89**	.89**	--		
7	Interpersonal Communication Satisfaction Inventory	.01	.33**	.02	.65**	.70**	.67**	--	
8	Relationship Stress	-.15	-.11	.11	-.38	-.54**	-.44**	-.67**	--

Note. \*\* $p < .01$ ; \* $p < .05$ ; TEC – Technology enabled communication with identified support person during the past 3 months.

### Supplemental Analyses

Informed by the significant correlations discussed above, a supplemental research objective was to document whether the frequency of communication with the identified support person influenced reported satisfaction with life, quality of emotional support, and communication satisfaction. Regression analyses were conducted separately to examine the predictive function of IPC and TEC communication among outcome variables shown to have significant correlations with these predictors. Analyses indicated that IPC explained a significant portion of unique variance in satisfaction with life, 6.7% ( $\beta = .26, p < .001$ ); received emotional support, 2.4% ( $\beta = .15, p < .05$ ); and relationship stress, 5.6% ( $\beta = .24, p < .01$ ). As IPC increased, respondents reported higher satisfaction with life and received emotional support. Interestingly, higher rates of IPC with the identified support person resulted in an increase in relationship stress. Furthermore, technology enabled communication explained a significant

portion of unique variance in satisfaction with life, 6.7% ( $\beta = -.26, p < .001$ ) such that an increase in technology enabled communication resulted in lower life satisfaction.

### *Association Among Type of Communication and Outcomes*

Table 6 presents the results of correlational analyses examining association among the frequency of various means of communication (i.e., in-person, phone call, text message, email, private message, public post, and video chat) with the identified support person and study outcomes. Of particular interest, IPC was shown to have significant negative associations with satisfaction with life and received emotional support; as IPC with the identified support person increased, satisfaction with life and received emotional support decreased. As anticipated, however, IPC was shown to have a significant negative association with relationship stress in that higher rates of IPC were related to lower rates of stress within the relationship with the identified support person.

Table 6. *Correlations Among Various Types of Communication Frequency on Outcomes (n = 179).*

	<b>In-person</b>	<b>Phone Call</b>	<b>Text</b>	<b>Email</b>	<b>Private Message</b>	<b>Public Post</b>	<b>Video Chat</b>
Satisfaction with Life Scale	<b>-.32**</b>	<b>.28**</b>	<b>.18*</b>	<b>.29**</b>	-.15	-.05	.02
Desired Emotional Support	-.02	.08	<b>.19*</b>	<b>-.16*</b>	.01	.06	.03
Received Emotional Support	<b>-.16*</b>	<b>.37**</b>	<b>.20*</b>	<b>.27**</b>	-.03	-.02	.08
Emotional Support Satisfaction	.02	<b>.24**</b>	.03	<b>.21**</b>	-.05	-.05	.10
UCLA Emotional Support Inventory	-.05	<b>.30**</b>	<b>.15*</b>	<b>.17*</b>	-.04	-.01	.10
Interpersonal Communication Satisfaction Inventory	.07	.13	.07	<b>.23**</b>	.09	.09	<b>.17*</b>
Relationship Stress	<b>-.32**</b>	-.11	<b>.18*</b>	<b>-.20*</b>	-.07	-.11	-.06

Note. \*\*p < .01; \*p < .05.



Furthermore, frequency of phone call communication with the identified support person was found to have significant positive correlations with satisfaction with life, received emotional support, emotional support satisfaction, and the UCLA Inventory; higher frequency of phone calls with the identified support person was related to higher scores on each of these outcome measures. Remarkably, communication with the identified support person through text messaging had significant positive associations with satisfaction with life, desired emotional support, received emotional support, the UCLA Inventory, and relationship stress. In short, as text messaging between the respondent and support person increased, satisfaction with life and emotional support increased, as well as levels of stress within the relationship.

The type of communication frequency that had significant associations with each study outcome was email. Frequency of email communication with the identified support person was found to have significant positive correlations with satisfaction with life, received emotional support, emotional support satisfaction, the UCLA Inventory and interpersonal communication; higher frequency of email usage with the identified support person was related to higher scores on each of these outcome measures. Moreover, higher frequency of email usage was found to have significant negative correlations with desired emotional support and relationship stress, such as when email communications with the identified support person increased, desired emotional support decreased.

The frequency of communication using social media outlets to send private messages or public posts between the respondent and their support person was not found to have significant associations with reported satisfaction with life, quality of emotional support, communication

satisfaction, or relationship stress. However, frequency of video chats with the identified support person was found to have a significant positive correlation with interpersonal communication; higher frequency of video chat usage with the identified support person was related to higher scores on interpersonal communication.

### ***Examination of Group Differences on Outcomes: Type of Support Person***

Final analyses assessed whether outcome scores differed depending on various grouping variables. Table 6 presents the results of running an Analysis of Variance (ANOVA) with *type of support person* serving as the predictor variable. An overall significant difference was documented for mean satisfaction with life scores,  $F(6, 167) = 9.00, p < .001$ . Post hoc contrasts were conducted using the Bonferroni procedure. Significant differences were found when comparing mean satisfaction with life scores between those who identified their spouse as a support person ( $M=27.98, SD=5.13$ ) and those who identified a relative ( $M=20.77, SD=7.85$ ), romantic partner ( $M=21.73, SD=5.92$ ), friend ( $M=20.78, SD=6.48$ ), or therapist ( $M=20.33, SD=2.51$ ); respondents whose spouse served as their support person reported significantly higher life satisfaction.

As shown in Table 7, a significant difference was also documented for received emotional support scores,  $F(6, 165) = 2.96, p < .01$ . Mean comparisons found that received emotional support scores significantly differed between those who identified their therapist as a support person ( $M=23.33, SD=2.08$ ) and those who identified a relative ( $M=20.45, SD=3.55$ ), or friend ( $M=19.19, SD=3.96$ ); respondents whose therapist served as their support person reported

significantly higher receipt of emotional support than those who identified their relative or friend.

Table 7. *Satisfaction with Life, Quality of Social Support, and Communication Satisfaction as a Function of Type of Support Person.*

				95% Confidence Interval	
	n	F	p-value	Lower Bound	Upper Bound
Satisfaction with Life Scale	174	9.00	<b>.001</b>	22.57	24.65
Desired Emotional Support	174	1.89	.086	12.85	14.00
Received Emotional Support	172	2.93	<b>.010</b>	20.07	21.24
Emotional Support Satisfaction	172	1.05	.393	32.01	34.24
UCLA Emotional Support Inventory	174	1.93	.079	64.68	68.48
Interpersonal Communication Satisfaction Inventory	169	1.32	.250	103.65	110.07
Relationship Stress	164	7.68	<b>.001</b>	5.09	6.18

Lastly, relationship stress scores were significantly influenced by the type of identified support person,  $F(6, 157) = 7.67, p < .001$ . Significant differences were found when comparing mean relationship stress scores between those who identified their friend as a support person ( $M=3.44, SD=3.05$ ) and those who identified a relative ( $M=5.39, SD=3.38$ ), spouse ( $M=6.57, SD=3.10$ ), or romantic partner ( $M=7.20, SD=3.29$ ); respondents whose friend served as their support person reported significantly lower relationship stress. It is worth noting that respondents whose romantic partner served as their support person reported the highest levels of relationship stress overall.

#### ***Examination of Group Differences on Outcomes: Live with Support Person***

Table 8 presents the results of running an ANOVA with *live with support person* serving as the predictor variable. An overall significant difference was documented for mean satisfaction

with life scores,  $F(2, 173) = 16.37, p < .001$ . Post hoc contrasts were conducted using the Bonferroni procedure. Significant differences were found when comparing mean satisfaction with life scores between those who live with their support person ( $M=25.96, SD=6.21$ ) and those who do not ( $M=21.38, SD=6.71$ ); respondents who reside with their support person reported significantly higher life satisfaction than those who do not.

Table 8. *Satisfaction with Life, Quality of Social Support, and Communication Satisfaction as a Function of Whether the Respondent Lives with the Identified Support Person.*

				95% Confidence Interval	
	n	F	p-value	Lower Bound	Upper Bound
Satisfaction with Life Scale	175	16.37	<b>.001</b>	22.58	24.64
Desired Emotional Support	175	1.53	.219	12.88	14.03
Received Emotional Support	173	1.93	.148	20.12	21.28
Emotional Support Satisfaction	173	6.02	<b>.003</b>	32.08	34.30
UCLA Emotional Support Inventory	173	1.72	.182	64.84	68.63
Interpersonal Communication Satisfaction Inventory	170	4.48	<b>.013</b>	103.85	110.22
Relationship Stress	164	28.27	<b>.001</b>	5.06	6.14

A significant difference was documented for mean emotional support satisfaction,  $F(2, 171) = 6.02, p < .01$ . Mean comparisons found that emotional support satisfaction scores significantly differed between those who periodically (*sometimes*) lived with their support person ( $M=16.21, SD=33.04$ ) and those who lived (*yes*) with their support person ( $M=32.35, SD=35.24$ ), or those who do not live (*no*) with their support person ( $M=31.70, SD=35.00$ ); respondents living with their support person *sometimes* reported significantly lower emotional support satisfaction than those who do (*yes*), and do not (*no*), live with their identified support person.

A significant difference was documented for mean interpersonal communication satisfaction,  $F(2, 167) = 4.48, p < .01$ . Mean comparisons found that interpersonal communication satisfaction scores significantly differed between those who periodically (*sometimes*) lived with their support person ( $M=58.57, SD=115.43$ ) and those who do not live (*no*) with their support person ( $M=106.02, SD=115.15$ ); respondents living with their support person *sometimes* reported significantly lower interpersonal communication satisfaction than those who do not live with their identified support person.

Lastly, relationship stress scores were significantly influenced by whether respondents lived with their identified support person,  $F(2, 162) = 28.27, p < .001$ . Significant differences were found when comparing mean relationship stress scores between each living status; those residing with their identified support person *sometimes* ( $M=6.88, SD=14.83$ ) reported the highest relationship stress, followed by those who live with their support person ( $M=5.60, SD=7.21$ ), and those who do not ( $M=2.93, SD=4.40$ ).

## **Chapter 5: Discussion**

### **Interpersonal Communication, Emotional Support and TEC versus IPC**

This thesis sought to examine the context of in-person communication (IPC) and technology enabled communication (TEC) in order to determine which modes of communication offer the most satisfaction for an individual's emotional support needs. A specific goal of this thesis was to determine if satisfaction in the emotional support component of interpersonal communication is affected more positively by IPC settings over TEC settings. Additionally, this study evaluated correlations between satisfying communication and emotional support.

In accord with the study hypotheses, the results of this study found that the most satisfying communication includes emotional support and is most successfully conveyed via in-person communication (IPC). Additionally, the results of this study show that life satisfaction was positively affected by IPC. This agrees with the results found by Trepte et al., (2015) that pointed to IPC contexts of social support having a more beneficial impact and a positive impact on life satisfaction and well-being. Notably, the results from this study did show increased relationship stress levels coinciding with an increase in IPC. This supports what Okdie (2011) described in that although IPC is rewarding, it can create difficulties. Okdie (2011) found that participants reported deciding on a topic of discussion and keeping a conversation going during IPC was problematic. Other potential difficulties could relate to the efforts it takes to become attuned when interacting with the support person in the same shared space. Another possibility for the increase in relationship stress could relate to simple conflicts which might arise during IPC. This could include things such as agreeing on meals and other issues arising while sharing

space, like location or conditions of the atmosphere itself, like whether or not to run the air conditioning or travel arrangements such as who's turn it may be to drive.

When comparing the percentage of communication done through various modes of TEC, results of this study also showed that some of the specific modes of TEC for some participants were associated with an increase in life satisfaction and received emotional support as well as a decrease in relationship stress correlating with an increase in frequency of communication via certain modes of TEC that included phone calls, emails and video chat. This reflects similarly to reporting made by Goodman-Deane et al., (2016) that some relationships might potentially be strengthened through the use of TEC, along with the assertion that individuals that use SNS adjust their expectations to fit what may seem more realistic in terms of what type of support is and isn't attainable in such a context. In the instance of texting as the mode, there was an increase shown in life satisfaction. However, stress went up too.

Additionally, for this research study, since satisfaction with life decreased as overall frequency of TEC increased compared to satisfaction with life as IPC increased, with no impact on emotional support, perhaps the users of TEC lessen their expectations for emotional support, which possibly takes a toll on satisfaction with life. This gives a morsel of possibility for what Goodman-Deane et al., (2016) reported as well, which is that as texting increased, life satisfaction decreased. It was suggested by Boutet et al., (2023) that miscommunication is likely when communication is via texting. This too may give some explanation for increased stress and decreased life satisfaction the more texting is utilized. Also, a key concept mentioned by Trepte et al., (2015) is that multiple modes of communication both through IPC and TEC can be

complimentary to relationships. However, Trepte et al., (2015) also points out that previous research has shown a reluctance felt by individuals in asking for emotional support through TEC to avoid appearing too in need. This could be seen in this study as a possible explanation as to why there was no association between increased frequency of using TEC for emotional support received.

### **Potential Influence of a Global Pandemic**

The timing of this study occurred concurrently while the COVID-19 pandemic was impacting the way people approached interpersonal communication. Although it was unpredictable, this research project coincided with lockdowns and drastic changes to daily life across the planet. Many people became increasingly isolated during the pandemic. When lockdowns were lifted and individuals were re-entering in-person social contact and interacting with other individuals, many new stressors loomed. In-person contact was now weighed down with fears surrounding COVID-19 and added new risks that came with close physical proximity because of the potential of either contracting COVID-19 or spreading it to loved ones. The enforcement of having to wear a mask even changed how people interacted in-person. Another layer of stress was added because of the requirement to wear masks in public places and also presented new obstacles to the logistics of interpersonal communication.

Masks cover a large portion of a person's face and also prevent lip reading and many of the non-verbal facial signals needed for clear communication. The survey for this study did not ask specific questions relating to the impact of the pandemic, yet it is appropriate to emphasize the changes to social interactions in society have been a paradigm shift on many levels, social



interactions being a piece of that. Substantial risks due to the pandemic were and still are an active concern for many individuals in mainstream society, which have created a new set of social norms that have been charged politically and altered previous customs and the rules and norms of social *do's and do not's*. The lockdowns were lifted and social contact with people has resumed. However, post-pandemic socializing still may not look the way it had before COVID-19 had essentially shut the world down for a good part of the year 2020 and well into 2021. It merits keeping in mind the altered social parameters that the pandemic made and how it may impact this study. Certainly, it is an area of research that is ripe for discovery and is an appropriate inquest to compare pre and post-pandemic social norms and the implications.

### **Human Interactions and Integrating TEC with Culture**

The overall forethought into planning and engineering conditions and methods of interpersonal communication for society could be better aimed so that individuals would be able to access and rely on contexts that are designed to enrich relationships and connectedness. Assuring the optimum conditions that foster Neural Darwinism for each individual could positively result in the collective of society working in the most advantageous form towards the betterment of the whole via the individual. Without each individual having the opportunity for prime neuro-circuitry formation like Dr. Mate has illuminated, the ultimate outcomes suffer negatively. Integrating with real significance, the stimulation needed for the mirror neuron system and the mentalizing system in the planning of how technology functions may improve the design of contexts that could accentuate rather than hinder interpersonal communication.

Impervious is the understanding that although humans adapt to their conditions, the conditions of TEC will not adapt to humans without those who engineer and plan it having the ethics and motivation to include modalities that prevent human rights violations and actually expand human potential by addressing the needs of human beings as social and emotional creatures.

For some vulnerable individuals, TEC hones in on impulses and negative emotions. Those who do not have a support person or community are up against great odds in finding the needed emotional support from an online source that can match that support through IPC. For those who do carry over in-person relationship interactions in the digital world and use TEC as well, there could be benefits.

### **Mental Health and Ethical TEC**

With recent suicide rates drastically increasing essentially in tandem with the uptick of TEC options, the parallels are undeniable. It is possible that TEC exacerbates the fears and emotions in humans, creating such pressures that behaviors seek relief of the lack of connection in desperate forms. Isolation and the atmospheric pressure of TEC can prove to be tragically harmful to the most vulnerable individuals, those who may be the loneliest.

For the future outlook of TEC and SNS, there is light on the horizon with organizations like the Center for Human Technology ([www.humanetech.com](http://www.humanetech.com)) which started around 2013, led by co-founder Tristan Harris, former design ethicist for the search engine Google. The Center for Humane Technology works to find and identify opportunities to improve the humanity of technology. Through their Humane Design Guide (<https://www.humanetech.com/designguide>),

the imperative focus is directed on emotional aspects of technology that are damaging due to stress, lack of rest and emotional exhaustion. The site lists specifics that can be addressed with the intention of improving emotional effects, balance, calm, and allowing individuals to stay in touch with their natural circadian rhythms, while also attaining support and maintaining a safe approach to TEC. The organization has called attention to many other aspects that technology impacts on humans, including group dynamics, social reasoning, decision-making, sense-making. Referring to having a grounded ability to learn, feel and to put a voice to the agency of individuals as a priority in TEC. There is also emphasis on the opportunity that human technology should actually facilitate the ability to focus and tune in to mindfulness rather than the current state of TEC and the internet, which is actually engineered to distract and continuously draw the attention of users to perpetually stay engaged online.

Online interactions and TEC are under scrutiny by some individuals and organizations. Thankfully, there are some individuals in the sphere of influence who are calling out the tech industry for intentionally introducing counter-productive and unhealthy practices in certain online contexts (Jouhki et al., 2016). The now well-known experiments conducted on Facebook were brought to the forefront in 2014, in an article published by the Proceedings of the National Academy of Sciences (PNAS). The title was, *Experimental Evidence of Massive-Scale Emotional Contagion Through Social Networks* by a group of professors from Cornell University back in 2012, just over a decade ago (Jouhki et al., 2016). Facebook has been singled out as having conducted a large-scale experiment in which they intentionally manipulated the News

Feeds of a reported 689,003 users of the SNS. Facebook was successful in proving that emotional contagion does occur in online spaces.

The manipulation of limiting positive status updates resulted in an increase in negative status updates by users. The experiment also found the reverse to be true. The more positive status updates that were allowed into news feeds, the more positive status updates were then subsequently posted. This was an ethical fumble in that manipulation and lack of informed consent go against standards of research which normally would offer individuals informed consent, allowing them the opportunity to be aware of risks and damages which they may incur as a result of exposure by taking part in a study. Most importantly, participants should always be given the option to be able to opt out, and thus allow them not to have their emotions tampered with.

Technology and social media have ushered in a strange new world and the rules are often quite rogue, at the cost of the well-being of the users. This is more devastating and concerning when factoring in that a negative emotional contagion was inflicted. Emotional contagion refers to a transference of an emotional state from one individual to the next. Knowing that such an unfortunate emotional impact may occur on SNS may be empowering, at least in the way that balance and awareness that SNS are not an accurate representation of real life or IPC. At the same time, if TEC and SNS can be engineered to instill the virtues that the Center for Humane Technology are working toward there may be hope to ethically build in sensibilities that are enhancing of human emotion. The IPC world that exists outside of TEC may need to be reemphasized as paramount to individuals and ultimately the whole of society. Ultimately,

caution and balance along with understanding and acknowledging that humans are sentient, emotional and social. Embracing what we are and staying connected may be the strongest and yet simplest element to healthy outcomes for emotional support and satisfying communication online and in-person.

### **Study Limitations, Implications and Future Research**

Potential limitations to this study could include not knowing how each participant was functioning in their daily lives, what may be impacting them currently emotionally, what support system they may or may not have, socio-economic status, physical health, diet, level of exercise, mental state, or if their baseline falls within a healthy range for their behavioral and mental health. Some participants may not have understood the concept of a support person. Other limitations could have included level of social skills and the attachment style of each participant. The region of origin also may contribute to participant opinion and cause limitation to this study. The survey was distributed online, therefore the participants were likely predisposed to using TEC. The study also took place at the end of the pandemic when emotional exhaustion may also have influenced the way participants answered as well as why some participants did not complete the survey. Demographics of the sample may have also affected findings as participants were predominantly female, and highly educated, for example, such factors impacted results. Implications of these limitations may include unclear reasoning for the results other than a general conclusion.

Implications of this study include that the results may answer questions and further research in related areas of interpersonal communication, and the altered dynamics involved in

the interactions between individuals with each other through technology. The results of this study are invested in maintaining an emphasis on the ethical development of human interactions with technology as it continues integration into daily living. Contributing to the evolving integration of human emotional support needs with the advancement of connectivity through TEC is a strong pillar in the foundation of this research as well. With the understanding of in-person interactions being essential for emotional support, there are concerns raised about the isolating practices such as solitary confinement imposed on certain groups, such as mental health patients or incarcerated individuals.

Future research could look at the emotional impact that individuals experience from interactions online. How do memes and algorithms and posts on SNS impact the emotions and psyche of those who use them? With an increase in body dysmorphia, what are the long-term implications of self-comparison to the self-image and self-esteem of those who are active on SNS? There is a need to seek answers to online bullying, and the emotional impact of it as well as being ghosted (a slang term for getting no response from someone) online? There is a need for investigation into suicidal ideation and correlations to TEC such as the impact SNS may have or the impact of reinforcing diffused and uncertain social cues. Research around what specific age groups may be more at risk of negative impacts from TEC would be useful. One example being adolescents. For adolescents, their mental health is especially vulnerable due to the chronological stage of their brain development. With an underdeveloped prefrontal cortex which hinders reasoning and also the inability of an adolescent to sort meaning or emotionally regulate is an area of research that is pressing.

Research into the benefits of integrating IPC with TEC could be helpful in establishing what kind of baseline of communication is needed for optimum outcomes. The function of the MNS and MS in specific contexts of interpersonal communication and circumstances would be fertile ground to investigate. Understanding more about which settings are preferred in order for people to achieve satisfying emotional support and satisfying communication will be enlightening for further research in maintaining the integrity of humankind as science and technology accelerates abilities and opportunities to connect.

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**Appendix A: Participant Information Questionnaire**

1. Age: \_\_\_\_\_
2. Gender/gender identity: \_\_\_\_\_
3. Ethnic background: \_\_\_\_\_
4. a. Are you employed? (circle one ):            *yes*            *no*  
b. If yes, how many hours a week do you work: \_\_\_\_\_
5. What is the highest level of education you have completed: \_\_\_\_\_
6. Marital status? (circle one ):  
*Never Been Married*            *Married*            *Divorced*
7. What country do you currently live in ?

### **Appendix B: Satisfaction with Life Scale**

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far, I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

## Appendix C: UCLA Emotional Support Inventory

### Emotional Support Relationship

1. Please choose one adult who you rely on most for emotional support. In this survey, this will be referred to as your *support person*. This is someone you consider to be your closest and most trusted confidant. This could be the person you are dating, a friend, spouse, parent, sibling or other relative, counselor, coach, co-worker, colleague etc.

- Please indicate the type of relationship which you have chosen: (describe in a word or two, such as: friend, sister, girlfriend, husband, wife etc.)

\_\_\_\_\_

- Do you live with this person? (circle one): (1) Yes (2) No
- Within the past three months, how often have you communicated with this person either actually in-person or through use of texting, calling, email, video call etc.? (circle one):
  - (1) Everyday
  - (2) Several times a week
  - (3) About once a week
  - (4) 2 or 3 times a month
  - (5) Once a month
  - (6) Less than once a month

2. Over the last three months, what percentage of the time did you get to talk to this person in an in-person, face-to-face settings compared to how much of the time communication was accomplished through using technology? (e.g., phone calls, texting, video calls, social media, apps.) *For example:* (a) 70% (b) 30%

(a) In-person communication \_\_\_\_\_

(b) Communication using technology \_\_\_\_\_

### Desired Emotional Support

1. At certain times, we want to feel loved and cared about by others. Within the past three months, how often have you desired to feel loved and cared about by others?

*never*      *rarely*      *sometimes*      *often*      *very often*

2. At certain times, we want to feel like a good person whom others think well of. Within the past three months, how often have you desired to feel respect, approval and/or acceptance from others?

*never      rarely      sometimes      often      very often*

3. At certain times, we want encouragement and reassurance to help us manage or deal with a specific situation. For example, sometimes we want to be consoled when we're upset or encouraged in general. Within the past three months, how often have you desired this?

*never      rarely      sometimes      often      very often*

4. At certain times, we want someone to listen to our concerns and feelings. Within the past three months, how often have you desired this?

*never      rarely      sometimes      often      very often*

5. At certain times, we want someone to do more than listen to us. We want them to understand our situation and empathize with our feelings. Within the past three months, how often have you desired this?

*never      rarely      sometimes      often      very often*

### **Received Emotional Support**

6. How often did your *support person* convey caring and love within the past three months (whether you wanted it or not)?

*never      rarely      sometimes      often      very often*

7. How often did your support person convey respect, approval, and/or acceptance within the past three months (whether you wanted it or not)?

*never      rarely      sometimes      often      very often*

8. How often did your *support person* convey encouragement and reassurance within the past three months (whether you wanted it or not)?

*never      rarely      sometimes      often      very often*

9. How often did your *support person* listen to you within the past three months?

*never      rarely      sometimes      often      very often*

10. How often did your *support person* understand and empathize with you within the past three months?

*never      rarely      sometimes      often      very often*

### **Emotional Support Satisfaction**

Indicate by circling the number that indicates the level of support satisfaction you felt for each question.

*For example: (If you feel neither dissatisfied nor satisfied you would **circle 4**)*

*very dissatisfied: 1 : 2 : 3 : **4** : 5 : 6 : 7 : very satisfied*

11. In general, how satisfied or dissatisfied have you been with the love and caring you've received from your *support person* within the past three months?

*very dissatisfied : 1 : 2 : 3 : 4 : 5 : 6 : 7 : very satisfied*

12. In general, how satisfied or dissatisfied have you been with the respect, approval, and acceptance you've received from your *support person* within the past three months?

*very dissatisfied : 1 : 2 : 3 : 4 : 5 : 6 : 7 : very satisfied*

13. In general, how satisfied or dissatisfied have you been with the encouragement and reassurance you've received from your *support person* within the past three months?

*very dissatisfied : 1 : 2 : 3 : 4 : 5 : 6 : 7 : very satisfied*

14. In general, how satisfied or dissatisfied have you been with the listening, understanding, and empathy you've received from your *support person* within the past three months?

*very dissatisfied : 1 : 2 : 3 : 4 : 5 : 6 : 7 : very satisfied*



### Appendix D: Modes of Communication

When talking with your support person which modes of communication do you use? (Indicate how often each mode is used, circle the frequency most closely applies.)

<b>In-person</b>	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Phone call</b>	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Text</b>	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Email</b>	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Private Message via Social Media/App</b> (i.e., Snap Chat, WhatsApp, Instagram)	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Social Media</b> (Public Post or Public Comment)	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Video Chat</b> (e.g., Zoom or FaceTime)	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>	<i>never</i>
<b>Other:</b>	_____	<i>daily</i>	<i>weekly</i>	<i>monthly</i>	<i>less than once a month</i>

### Appendix E: Interpersonal Communication Satisfaction Inventory

The purpose of this section is to learn about your reactions to the communication you have had over the previous 3 months. You are asked to react to a number of statements. Please indicate the degree to which you agree or disagree that each statement describes those conversations. The 4 or middle position on the scale represents "undecided" or "neutral," then moving out from the center, "slight" agreement or disagreement, then "moderate," then "strong" agreement or disagreement.

For example, if you strongly **agree** with the following statement you would **circle 1** - The other person moved around a lot.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

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1. My *support person* let me know that I was communicating effectively.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

2. When I communicate with my *support person* nothing gets accomplished.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

3. I would like to have more conversations like the ones my *support person* and I have been having.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

4. My *support person* genuinely wanted to communicate with me.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

5. I am very *dissatisfied* with the conversations I had with my *support person*.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

6. I usually had other things to do when communicating with my *support person*.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

7. During conversations with my *support person* I was able to present myself as I wanted them to view me.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

8. My *support person* usually lets me know that they understood what I saying.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

9. I was very satisfied conversations with my *support person*.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

10. My *support person* expressed a lot of interest in what I had to say.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

11. I did not enjoy the communication I had with my *support person*.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

12. My *support person* did NOT provide support for what they were saying.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

13. I felt I could talk about anything with my *support person*.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

14. My *support person* and I each got to say what we wanted.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

15. I feel that my *support person* and I could laugh easily together.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

16. The conversations with my *support person* flowed smoothly.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

**17.** My *support person* usually changed the topic when their feelings were brought into the conversation.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

**18.** My *support person* frequently said things which added little to the conversations.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

**19.** My *support person* talked about things I am NOT interested in.

Agree: 1 : 2 : 3 : 4 : 5 : 6 : 7 : Disagree

### Appendix F: UCLA Relationship Stress

Relationships usually involve a certain amount of stress. For example, our friendships go through difficult times, we don't always get along with our families, and our romantic relationships can sometimes be hard to maintain. The next few questions deal with various types of stress you may have felt in your interpersonal relationships within the past three months (circle the answer that applies for each of the following questions):

1. A relationship can become stressful when another person is critical or displeased with us. Sometimes this takes the form of comments and other times it is just felt. In the past three months, how often has your *support person* seemed critical or displeased with you?
 

*never      rarely      sometimes      often      very often*
2. A relationships can also be stressful when the other person is angry or short tempered with us. Within the past three months, how often has your *support person* seemed angry with you?
 

*never      rarely      sometimes      often      very often*
3. People we care about let us down now and then, even if they don't mean to. There are many possible reasons for this, and it can be stressful. Within the past three months, how often have you been disappointed by your *support person* or felt he or she let you down?
 

*never      rarely      sometimes      often      very often*
4. Whether intentional or not, sometimes others bug us or get on our nerves. Within the past three months, how often has your *support person* done this?
 

*never      rarely      sometimes      often      very often*
5. A relationship can sometimes take a lot out of us. At times the people that we care about make certain demands of us. For example, they may burden us with their problems or needs. Within the past three months, how often has your *support person* done this?
 

*never      rarely      sometimes      often      very often*

## Appendix G: IRB Approval

### **Institutional Review Board for the Protection of Human Subjects**

**Approval of Initial Submission – Exempt from IRB Review – AP01 Date:** August 11, 2022  
**IRB#:** 14840

**Principal Investigator:** Alexandra Mistelske

**Approval Date:** 08/11/2022

**Exempt Category:** 2

**Study Title:** Correlation Between Perceived Emotional Support and Satisfying Interpersonal Communication: Online and In-Person

On behalf of the Institutional Review Board (IRB), I have reviewed the above-referenced research study and determined that it meets the criteria for exemption from IRB review. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

As principal investigator of this research study, you are responsible to:

- Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Request approval from the IRB prior to implementing any/all modifications as changes could affect the exempt status determination.
- Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- Notify the IRB at the completion of the project.

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or [irb@ou.edu](mailto:irb@ou.edu).

Cordially,



Aimee Franklin, Ph.D.  
Chair, Institutional Review Board

## Appendix H: Modification IRB Approval

### Institutional Review Board for the Protection of Human Subjects

#### Approval of Study Modification – Expedited Review – AP0

August 19, 2022 **IRB#:** 14840

**Reference No:** 738903

Alexandra Mistelske

Correlation Between Perceived Emotional Support and Satisfying Interpersonal Communication:  
Online and In-Person

**Approval Date:** 08/19/2022

**Modification Description:** Added a question to ask, what country participant lives in

The review and approval of this submission is based on the determination that the study, as amended, will continue to be conducted in a manner consistent with the requirements of 45 CFR 46.

To view the approved documents for this submission, open this study from the My Studies option, go to Submission History, go to Completed Submissions tab and then click the Details icon.

If the consent form(s) were revised as a part of this modification, discontinue use of all previous versions of the consent form.

If you have questions about this notification or using iRIS, contact the HRPP office at (405) 325-8110 or [irb@ou.edu](mailto:irb@ou.edu). The HRPP Administrator assigned for this submission: Kat L Braswell.

Cordially,



Lara Mayeux, Ph.D.  
Chair, Institutional Review Board

## Appendix I: Modification IRB Approval

### Institutional Review Board for the Protection of Human Subjects

#### Approval of Study Modification – Expedited Review – AP0

September 27, 2022 **IRB#:** 14840 **Reference No:** 740138

Alexandra Mistelske

Correlation Between Perceived Emotional Support and Satisfying Interpersonal Communication:  
Online and In-Person

**Approval Date:** 09/27/2022

**Modification Description:** Updating recruitment

The review and approval of this submission is based on the determination that the study, as amended, will continue to be conducted in a manner consistent with the requirements of 45 CFR 46.

To view the approved documents for this submission, open this study from the My Studies option, go to Submission History, go to Completed Submissions tab and then click the Details icon.

If the consent form(s) were revised as a part of this modification, discontinue use of all previous versions of the consent form.

If you have questions about this notification or using iRIS, contact the HRPP office at (405) 325-8110 or [irb@ou.edu](mailto:irb@ou.edu). The HRPP Administrator assigned for this submission: Kat L Braswell.

Cordially,



Lara Mayeux, Ph.D.  
Chair, Institutional Review Board



## Appendix J: Modification IRB Approval

### Institutional Review Board for the Protection of Human Subjects

#### Approval of Study Modification – Expedited Review – AP0

November 11, 2022 **IRB#:** 14840

**Reference No:** 742483

Alexandra Mistelske

Correlation Between Perceived Emotional Support and Satisfying Interpersonal Communication:  
Online and In-Person

**Approval Date:** 11/11/2022

**Modification Description:** Increasing max enrollment to 2000

The review and approval of this submission is based on the determination that the study, as amended, will continue to be conducted in a manner consistent with the requirements of 45 CFR 46.

To view the approved documents for this submission, open this study from the My Studies option, go to Submission History, go to Completed Submissions tab and then click the Details icon.

If the consent form(s) were revised as a part of this modification, discontinue use of all previous versions of the consent form.

If you have questions about this notification or using iRIS, contact the HRPP office at (405) 325-8110 or [irb@ou.edu](mailto:irb@ou.edu). The HRPP Administrator assigned for this submission: Kat L Braswell.

Cordially,



Lara Mayeux, Ph.D.  
Chair, Institutional Review Board

## Appendix K: Modification IRB Approval

### Institutional Review Board for the Protection of Human Subjects

#### Approval of Study Modification – Expedited Review – AP0

February 22, 2023 **IRB#:** 14840 **Reference No:** 745207

Alexandra Mistelske

Correlation Between Perceived Emotional Support and Satisfying Interpersonal Communication:  
Online and In-Person

**Approval Date:** 02/22/2023

**Modification Description:** Changing faculty advisor

The review and approval of this submission is based on the determination that the study, as amended, will continue to be conducted in a manner consistent with the requirements of 45 CFR 46.

To view the approved documents for this submission, open this study from the My Studies option, go to Submission History, go to Completed Submissions tab and then click the Details icon.

If the consent form(s) were revised as a part of this modification, discontinue use of all previous versions of the consent form.

If you have questions about this notification or using iRIS, contact the HRPP office at (405) 325-8110 or [irb@ou.edu](mailto:irb@ou.edu). The HRPP Administrator assigned for this submission: Kat L Braswell.

Cordially,



Lara Mayeux, Ph.D.  
Chair, Institutional Review Board