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By

Carley B. Durante

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The Thesis committee for Carley B. Durante

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**Adapting nonverbal coding theory to mobile mediated
communication: An analysis of emoji and other digital nonverbals**

APPROVED BY

SUPERVISING COMMITTEE:

Supervisor: _____

**Adapting nonverbal coding theory to mobile mediated
communication: An analysis of emoji and other digital nonverbals**

by

Carley B. Durante

Bachelors of the Arts.

Thesis

Presented to the Faculty of the Graduate School

of Liberty University

in Partial Fulfillment

of the Requirements

for the Degree of

Masters of the Arts in Strategic Communications.

Liberty University

April 2016

For Kyle. Thank you for always believing in me and pushing me to do my best. Thank you for putting up with papers sprawled on the floor, no clean laundry, and lots of take out. For my parents, who always encouraged me to learn as much as possible. And for my girls, without you I wouldn't know a *thing* about emoji. 🤔😭

Acknowledgements

This thesis would not have been possible without the encouragement, faith, and patience of my committee. Thank you Dr. Kristen Hark, Dr. Bruce Kirk, and Dr. Cliff Kelly for, not only being my professors, but for inspiring me to learn, to ask questions, and to work hard.

Thank you, Dr. Kelly for being my biggest cheerleader and allowing me to “think big”—without your encouragement I don’t think I would have ever considered academic publishing. Thank you Dr. Kirk for setting high standards and challenging me to produce clean, unbiased research. Lastly, thank you Dr. Hark for the personal, spiritual, and emotional mentoring you have blessed me with throughout my graduate studies.

“We are more connected than ever—and we need to know that our connections are not being misunderstood. We need to let people know, even people very far away, staring at a screen, that we’re happy. Or confused. Or joking. Or missing them.”

“...the emoji—that attempt to bridge the difficult gap between what we feel and what we intend and what we say and what we text—is the signature punctuational flourish of the Millennials.”

—Adam Sternbergh, 2014
Daily Intelligencer

**Adapting nonverbal coding theory to mobile mediated
communication: An analysis of emoji and other digital nonverbals**

by

Carley B. Durante, M.A.

Liberty University, 2016

CHAIR: Dr. Kristin J. Hark

Nonverbal communication has been an area of communication theory studied for decades. Despite more daily communication occurring over mediated communication, there is a lack of research surrounding digital communication, specifically mobile-mediated communication (MMC). While there has been research conducted regarding computer-mediated communication (CMC), specifically studies examining email communication and instant messaging (IM), the mobile conversation is relatively untouched by current scholarship. This paper will streamline nonverbal coding research to set the groundwork for application and translation of nonverbal coding elements to mobile-mediated communication and the text message conversation. Even more specifically, the elements of kinesics, vocalics, and chronemics will be reviewed and further defined to see if these elements translate to the digital elements of emojis, typed laughter, and excessive capitalization and punctuation.

Keywords: communication, nonverbal communication, nonverbal coding, kinesics, vocalics, chronemics, emoji, digital, mobile-mediated communication (MMC), texting, computer-mediated communication (CMC), FtF, SIP, instant messaging, IM, Millennial.

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In 2015 the Oxford English Dictionary's word of the year was, actually, not a word at all. It was this, 😄, the "Face with Tears of Joy" emoji. How is it possible that when evaluating all the *words* of 2015, a pictograph was the choice? The selection of emoji as 2015's Word of the Year, demonstrates the penetrating influence of digital technologies on communication. In an article for *The Guardian* Coccozza (2015) writes, "[t]hree or four years ago, Oxford Dictionaries' announcement would have been subversive, but now it seems a reasonable reflection of the way that language is shifting" (n.p). Furthermore, Oxford Dictionary's choice in awarding an emoji the title, Word of the Year Sternbergh (2014) writes:

This was very big news to emoji enthusiasts. It should be pretty big news for you, as well. We are all increasingly talking to each other through screens...If you ask a random person, especially one under 30, what a tilde is, he will probably stare at you blankly. But he is very likely to recognize, and comprehend, Face With Tears of Joy. (n.p.)

Much of mediated communication research focuses on computer-mediated communication (CMC), specifically the channels of email and instant messaging (IM). Although the digital channels of email and instant messaging are still prominent, especially within the workplace, the continual developments and advancements in mobile technologies demand consideration of the mobile conversation by communication experts.

The amount of time spent interacting on mobile devices is enough evidence to warrant scholarly investigation. A 2010 Pew report showed that teenagers text each other more frequently than they use any other form of communication, including face-to-face conversation, which is ranked third (Sternbergh, 2014). According Mahatanankoon and O'Sullivan (2008), "[m]obile text messaging is one of the world's most popular communication tools, but few

empirical studies have examined users' abilities and attitudes toward such technologies" (p. 973). Ultimately, there is a critical need for a deeper and richer understanding of communication theory at work in mobile text messaging. Text messaging is popular, it is prevalent, and, therefore, it is pertinent to scholarship.

It is important to note that the purpose of this paper is not to ignore the importance of face-to-face (FtF) communication, nor is it designed to determine which mode of discourse is preferred, dominant, or more necessary. Rather, this paper aims to clarify *why* mobile text messaging is such a prominent channel for discourse by illustrating *how* the presence of digital nonverbals have sustained the integrity of FtF conversations within the text messaging conversation. This paper highlights how communication theory principles transform and evolve to meet the conversational needs of Millennials, or digital natives, within mobile-mediated communication (MMC¹). Specifically, the research included in this study examines how the nonverbal coding elements of kinesics, vocalics, and chronemics translate to the digital conversation.

The expectation for this paper is the synthesis of nonverbal coding theory principles with the less studied complexities of mobile text messaging conversations. It is anticipated that nonverbal coding theory correlates to MMC in such a way that a preliminary understanding of text messaging nonverbal behaviors can be established. Therefore, the guiding research questions include:

RQ1: Can nonverbal coding be present within digital communication, specifically mobile-mediated communication (MMC)?

(1a) If so, in what form are these codes manifesting as digital nonverbals?

¹ For the purpose of this paper, mobile-mediated communication will henceforth be referred to as MMC.

(1b) If so, what is the impact of digital nonverbals on MMC?

One prominent element of text messaging behavior under investigation throughout this paper will be emoji. After awarding the “Word of the Year” to the “Face with Tears of Joy” emoji, president of Oxford Dictionaries, Casper Grathwohl explained, “When you look back at the year in language, one of the most striking things was that, in terms of written communication, the most ascendant aspect of it wasn’t a word at all, it was emoji culture...The fact that English alone is proving insufficient to meet the needs of 21st century digital communication is a huge shift” (Read, 2016, n.p.). This “shift” Grathwohl refers to calls for the establishment of a theoretical framework and process of analysis for devices at work in MMC. If emoji is not a word, yet it is used in conjunction with language to communicate, by default the only plausible function of emoji is as nonverbal. However there are more digital devices at work in MMC than just emoji. The nonverbal codes of kinesics, vocalics, and chronemics all have a place in the mobile conversation. Therefore nonverbal codes operating in MMC function as *digital nonverbals*.

Rationale

For those who have underestimated the pervasiveness of digital culture, text messaging and its mechanisms are no longer a mere fad for teenagers. In the article "The Deeper Meaning of Emojis: What You Need to Know on How Social Media Is Changing Communication" author Read (2016) writes, "[i]t's no longer just teenagers or younger people who are using emoji's, hashtags and neologisms – they've reached the mainstream" (n.p.). Even at age 44, president of Oxford Dictionaries, Caspar Grathwohl, avoided using emojis altogether until his recent realization: "...there was a tipping point this year. It's now moved into the mainstream" (Cocozza, 2015, n.p.).

Tyler Schnoebelen, a linguistics Ph.D. from Stanford notes, "communication is very visual" and explains, when talking with someone face-to-face, one doesn't need an additional word or symbol to express "I'm smiling" because one would, presumably, be smiling (Read, 2016, n.p.). Walther (2006) notes how communication researchers often assume communicators cannot accomplish the same nonverbal functions as they do in full-cue environments, such as FtF interactions. However if this were the case, it would be impossible for authentic, meaningful, or successful communication to take place within mediated-communication. The perceived lacking of traditional FtF cues unavailable to MMC users, such as body language, inflection, or pauses, are in fact, not missing at all. MMC users create meaningful communication by engineering complex and intentional digital nonverbal devices. The term *digital nonverbals* applies to conventions unique to MMC. The kinesic code, or emoji, the digital replacement for facial expression 😡, body language 🙋, gestures 👉, and eye behavior 😬. The digital vocalic code will include textual elements relating to the digital voice, such as laughter (LOL,) intensity (capitalization,) pitch height (punctuation,) and emphasis (repeated letters.)

Additionally, the chronemic code functions of punctuality or wait time, duration, and urgency manifest as digital nonverbals. Having entered the “mainstream,” digital nonverbals, specifically emoji, indicate now is the opportune time to investigate the impact of text messaging behaviors on communication theory. The following section outlines reviewed literature in seminal nonverbal communication theory, as well as research outlining significant developments in mediated communications.

Literature Review

Nonverbal communication theory will serve as the foundation for understanding the digital nonverbals of MMC, therefore literature regarding nonverbal coding theory will be reviewed first. Following a review of theory, digital communication research will be examined. The purpose in reviewing nonverbal coding is to discern which terms can be adapted from FtF interactions, translated to digital nonverbals, and applied to mobile-mediated communication (MMC). In reviewing theoretical aspects of nonverbal communication, this literature review first examines overarching principles of nonverbal theory, followed by specific kinesics, vocalics, and chronemic codes.

Nonverbal Coding

Burgoon, Buller, and Woodall (1996) note the presence of academic discrepancy surrounding whether or not nonverbal cues “are truly an independent symbolic system or merely a by-product of producing speech” (p. 151). On one side of the argument, theorists believe nonverbal cues serve primarily as an *intrapersonal* rather than *interpersonal* functions; such as when a speaker uses hand gestures to help retrieve a word from memory. In this argument, it is believed nonverbal acts are not intended to convey meaning, but rather are “spill-over” from the speech production process, and therefore not true communication (Burgoon et al., 1996, p.152). However on the other side of the argument is the position that nonverbal cues are used deliberately to communicate and are “part and parcel” of the total message (Burgoon, et al., 1996, p. 152). The views of this paper are consistent with the latter. With nonverbal cues dominating FtF interactions (researchers estimate about 80 percent of communication is nonverbal) the likelihood of nonverbal coding elements also appearing in digital communication mediums is plausible (Alban, 2015).

Prior to translating nonverbal communication codes to digital nonverbals, a concrete understanding of nonverbal coding must be established. This will be accomplished by providing definitions of nonverbal coding's structural, functional, and behavioral definitions. Littlejohn and Foss (2011) provide a basic definition for nonverbal codes: "nonverbal codes are clusters of behaviors that are used to convey meaning" (p. 126). Furthermore the authors distinguish six structural properties of nonverbal codes:

1. Nonverbal codes are analogic; they form a spectrum or range.
2. Nonverbal codes possess iconicity; they resemble, or mimic the thing being symbolized.
3. Nonverbal codes elicit universal meaning (such as crying or smiling).
4. Nonverbal codes enable transmissions of several messages simultaneously.
5. Nonverbal codes evoke automatic responses.
6. Nonverbal codes are emitted spontaneously.

Having established the structural properties of nonverbal codes, attention must now be turned to the classification of nonverbal functions. Harrison (1974) divides nonverbal communication into four categories: performance codes, spatiotemporal codes, artifactual codes, and mediatory codes. Harrison's (1974) performance codes include any nonverbal behavior performed by the human body, including body movement, facial expression, eye behavior and gaze, touch, and vocal activity. Spatiotemporal codes include nonverbal messages based on manipulation of space, distance, and time. Artifactual codes include communicating through materials and objects, such as clothing, adornment, architecture, and object arrangement. Harrison's (1974) final category is mediatory codes, which is when media intervenes between the sender and receiver.

Another system for code classification comes from Riggio (1992) who divides nonverbal communication into three categories: expressivity (encoding), sensitivity (decoding), and control (ability to regulate nonverbal displays.) However, the most common approach comes from seminal nonverbal communication theorist Burgoon and colleagues who classify codes by function (Burgoon, Buller & Woodall, 1996). The seven types of nonverbal code functions include: kinesics (body movement, facial activity, and gaze); vocalics (vocal activity); physical appearance; haptics (touch); proxemics (space or distance); chronemics (time); and artifacts (objects) (Burgoon, Buller & Woodall, 1996).

Within these seven functions of nonverbal codes, there are also distinct categories, including emblems, illustrators, the affect display, regulators and adaptors (Ekman & Friesen, 1969). Although these categories are often applied to kinesics, they can be identified within many nonverbal codes (specifically vocalics and chronemics.) Burgoon, et al. (1996) notes that Ekman and Friesen's (1969) application of these five categories to the kinesic code are not mutually exclusive.

Kinesic emblems.

The kinesic code of nonverbal communication is often considered the largest and most significant of the nonverbal codes. Kinesics includes facial expressions, eye behavior, and body movement, or body language. According to Ekman and Friesen (1969), an emblem may repeat, substitute, or contradict some part of the associated verbal behaviors. Emblems can be shown in any area of the body, although they are primarily shown in the face and hands (Ekman & Friesen, 1969). Perhaps most significantly, the authors claim emblems originate through learning, much like verbal materials.

To distinguish whether or not something is an emblem, replace the perceived emblem with a word, or two; if the meaning does not change, it is most likely an emblem. According to Ekman and Friesen (1969), “Emblems are those nonverbal acts which have a *direct verbal translation*, or dictionary definition, usually consisting of a word or two, or perhaps a phrase” (p. 63, emphasis added). Furthermore, Littlejohn and Foss (2011) note emblems “can be verbally translated into a rather precise meaning...and are normally used in a deliberate fashion to communicate a particular message” (p. 128). Additionally, Ekman and Friesen (1969) note the verbal definition or translation of an emblem “is well known by all members of group, class, or culture” (p. 63). Knowing that emblems have a precise meaning and direct translation, as well as a culturally understood definition, will be helpful in identifying emblematic devices in MMC.

Kinesic illustrators.

The next of Ekman and Friesen’s (1969) kinesic categories is illustrators. Illustrators, or gesticulations (Burgoon, et al. 1996) are movements directly tied to speech, which illustrate what is being said verbally. Like emblems, illustrators repeat, substitute, and contradict a word or phrase (Ekman & Friesen, 1969). However a critical distinction between illustrators and emblems is most illustrators do not have an independent meaning apart from words. A common example of this is the thumbs-up sign. The thumbs-up signal is a hand gesture that indicates “good job,” whereas a finger pointing is also a hand gesture, but does not have a definitive meaning, or direct translation, when taken out of context. While the thumbs-up gesture is an emblem, the pointing gesture is an illustrator (Ekman & Friesen, 1969).

There are several different types of illustrators: batons, ideographs, deictic, spatial, kinetographs, and pictographs. Baton illustrators are used to accent or emphasize a particular word or phrase; ideograph illustrators sketch a path or direction of thought; deictic illustrators

point to an object; and spatial illustrators show a spatial relationship (Ekman & Friesen, 1969). kinetograph illustrators represent movement or resemble a human action, and pictograph illustrators draw a picture of their referent (Ekman & Friesen, 1969). Littlejohn and Foss (2012) believe illustrators are intentional, although a speaker may not always be aware of his or her usage of them.

Kinesic affect display and affect blends.

The affect display element within the kinesic code includes the face and facially displayed emotions, or facial expressions. The affect display functions by repeating, qualifying, or contradicting verbal statements, or the affect display can be detached from verbal communication (Ekman & Friesen, 1969). Littlejohn and Foss (2011) believe affect displays are innate and intrinsically coded. This means *how* one determines if it is appropriate to display an emotion, and *what* specific emotion will be displayed, depends on personal experience.

Ekman and Friesen (1969) note the ability of observers to distinguish among the seven universally recognized affective states (happiness, surprise, fear, sadness, anger, disgust, and interest) when viewing the human face, suggests there must be “specifiable cues” within facial displays that can be coded (p. 72). Although, age, gender, race, and geographic location contribute to how one manages his or her affect displays, the authors note that these seven affect displays can be recognized within one’s own culture, as well as distinguished across various cultures (Ekman & Friesen, 1969).

Oftentimes facial expressions represent more than one emotion, thus “the affect blend” considers facial expressions comprised of multiple emotions. According to Ekman and Friesen (1969) “at any given instant in time the face typically conveys affect blends (multiple emotions), rather than a single emotional state. The map of the facial features is sufficiently complex to

allow the display of mixtures of two or more emotions simultaneously” (p. 75). Overall these definitions offered by seminal theorists Ekman and Friesen (1969), will be useful in understanding how the complexities of the affect display and the affect blend translate to digital nonverbals in MMC.

Kinesic regulators.

Kinesic regulators are used to control, coordinate, and regulate interaction. Ekman and Friesen (1969) define regulators as “acts which maintain and regulate the back-and-forth nature of speaking and listening between two or more interactants. They tell the speaker to continue, repeat, elaborate, hurry up, become more interesting, give the other a chance to talk, etc.” (p. 82). Similar to how emblems and illustrators derive significance from cultural understanding, the origin of regulators is cultural learning (Littlejohn & Foss, 2011, p. 129).

Ekman and Friesen (1969) also note regulators relate to the “conversational flow,” and the “pacing of the exchanged” (p. 82). The most common regulator is the head nod, which is the equivalent of the verbal “mm-hmm” (Ekman & Friesen, 1969). The authors also note the involuntary nature of regulators suggests they are “highly over-learned habits” (Ekman & Friesen, 1969, p. 83). As previously mentioned, although Ekman and Friesen (1969) relate these categories to kinesics, they are evident across several nonverbal codes. The regulator will manifest in MMC as both a kinesic and chronemic device.

Kinesic adaptors.

Ekman and Friesen’s (1969) kinesic element of the adaptor includes three sub-parts: the self-adaptor, the alter-adaptor, and the object-adaptor. Ekman and Friesen (1969) write, “these movements were first learned as part of adaptive efforts to satisfy self or bodily needs, or to perform bodily actions, or to manage emotions, or to develop or maintain prototypic

interpersonal contacts or to learn instrumental activities” (p. 84). Overall, the kinesic adaptor facilitates the release of bodily tension, such as hand wringing hand or foot jiggling (Littlejohn & Foss, 2011, p. 128).

Specifically, then, the self-adaptor is an unconscious reaction to one’s body, such as scratching or playing with one’s hair. The alter-adaptor is directed at another person’s body (such as slapping someone on the back); whereas the object adaptor is directed at things (twisting a paperclip) (Littlejohn & Foss, 2011, p. 128). Concerning adaptors, Littlejohn and Foss (2011) write: “[r]arely are they intentional, and one is usually not aware of one’s own adaptive behaviors...[adaptors] are sometimes interactive and often informative” (p. 128-29).

Vocalics.

Burgoon, et al. (1996) claim vocal cues are among the most powerful in the nonverbal communication repertoire, and are used to “complement, accent, emphasize, or contradict what is said, as well as to send additional messages” (p. 58). Examples of cues in the vocalic code include: pitch, loudness, silences, pauses, laughs, sighs, coughs, and sneezes. As far as acquisition of vocalics is concerned, many scholars believe learning vocalics begins soon after birth, and it is human instinct to attune oneself to vocalic nonverbal behavior. In doing so, humans develop the ability to understand what is *truly* being conveyed, either in addition to, or despite of, what is being *spoken*.

One of the most foundational developments of vocalic coding is Trager’s (1961) classification system. Trager’s (1961) first level of analysis begins with the *voice set*, which is the mental, physiological, and physical characteristics of a speaker that contribute to one’s talking behavior. The second level of analysis is *speech* and at this level a combination of

language and paralinguistics is examined. Paralinguistics includes voice qualities and vocalizations (Burgoon, et al., 1996).

Voice qualities include vocal behaviors such as: pitch range, articulation control, resonance, and tempo. Vocalizations include vocal sounds or noises that are separate from language, and include three subcategories: vocal characterizers, vocal qualifiers, and vocal segregates. The first subcategory, vocal characterizers, includes sounds such as laughing, crying, yelling, whispering, moaning, groaning, whining, breaking, belching, and yawning. The second subcategory of vocalizations, vocal qualifiers, comprises features of intensity or pitch height (Trager, 1969). The last subcategory of Trager's (1969) vocalizations is vocal segregates, which includes pauses, clicks, snorts, and vocalic emblems like "uh uh" for no, and uh-huh for yes, "uh" for hesitation and "sh," for quiet². Overall, Trager's (1969) classification system and levels of paralinguistics will provide the roadmap for understanding how digital vocalics manifest in MMC.

In addition to the significant developments of Trager (1969), Devito (1989) investigates the vocalic behavior of pauses. Devito (1989) postulates silences during interactions allow the communicator time to think, inflict harm, prevent verbal communication, express emotions, and signal that the person has nothing to say. Furthermore Jaffe and Feldstein (1970) distinguish between *pauses* (joint silence linked by the same speaker) and *switch pauses* (intervals of silence at one end by one speaker and at the other end by another speaker.) Vocalizations are periods of uninterrupted vocal sound by a speaker, speaking turns are back-and-forth sharing of the speaker role, and simultaneous speech is overlapping speech often indicating the absence of a switch pause.

² For a more comprehensive understanding of Trager's (1961) second level of vocalic classification system see Appendix A, Table 1.

Another noteworthy development by Jaffe and Feldstein (1970) is the concept of “simultaneous speech.” Simultaneous speech is when discourse overlaps due to the *absence* of a switch pause. Ultimately periods of silence and pauses play a critical part in the digital conversation and have a place of relevance in MMC. The conclusions reached by seminal vocalic theorists, namely Burgoon, et al. (1996) and Trager (1969) form the foundation for the translation of, and application to, digital vocalics in MMC. The absence of the voice in MMC converts the vocalic cues of turn-taking, pauses, and periods of silence to chronemic codes, based on the instantaneous and simultaneous nature of text messaging.

Chronemics: Punctuality or wait time, duration, and urgency

Although the kinesic and vocalic nonverbal codes are typically considered to account for the majority of nonverbal codes, the shortage of visual cues in MMC merits equal attention paid to the chronemic code of nonverbal communication. Furthermore, for the same reason of visual cue deficiency, one may consider that the chronemic code is more pervasive and prevalent in the MMC conversation than the FtF conversation.

Chronemic coding regards time, specifically how time relates to discourse. Hall (1959) notes three distinct time systems operating in culture. The first is technical time, or the scientific measurement of time. The second type of time is formal time; or the traditional way a culture views time, including cultural values placed on time, and deeply rooted traditions regarding time (Burgoon, et al., 1996). The third type of time classified by Hall (1959) is informal time.

Hall’s (1959) informal time system includes six elements: punctuality, duration, urgency, monochronism, activity and variety. The elements transferrable to the mobile conversation are punctuality or waiting time, duration, and urgency and will therefore be defined further. Burgoon, et al. (1996) note punctuality varies between a formal or task-oriented situation and a

social situation. According to Burgoon, et al. (1996), “[p]unctuality is one of the most prominent concepts in the informal time system...what constitutes as being ‘on time,’ however, varies across different types of situations” (p. 129). Despite cultural differences in defining punctuality, timing in general “can have a strong messaging value in each culture” (Burgoon, et al., 1996, p. 131). Another way to refer to punctuality is waiting time. What is interesting about punctuality and waiting time is the possibility of using these devices intentionally (Burgoon, et al., 1996, p. 131).

In addition to the chronemic coding element of punctuality, Hall’s (1959) second chronemic element of informal time is duration. The meaning of duration varies in interpretation depending upon circumstance, an individual’s intentions, or level of importance regarding the task at hand. Hall (1959) suggested eight informal levels of duration within our culture: immediate, very short, short, neutral, long, very long, terribly long, and forever. The ways to interpret these eight informal levels of duration can be influenced by many factors, some of which include age, gender, race or ethnicity, geographic region, and even socioeconomic status.

The third chronemic element possessing potential for translation to MMC is urgency. Concerning urgency, Burgoon, et al. (1996) states:

Urgency similarly concerns the immediacy and importance of events. The less lead time, the greater the urgency. The timing of an event can have the same effect. A knock at the front door at 3:00am connotes far more urgency than one at 3:00pm. (p. 131)

Similar to duration, how one interprets urgency depends upon cultural learning, situational circumstances, and interact relationships. In order to fully understand MMC and user

engagement, one must also consider how contact comfort or immediacy work together with chronemic codes. Walther notes (2006):

People have a natural drive to feel a sense of psychological closeness to others. Contact comfort is the sense of relief we feel from knowing others in our network are accessible. Immediacy also lends a sense of relief in that the contact is *without delay*...When you reply to a message, do you keep checking for a response? These are indicators of your need for contact comfort and contact immediacy. (p. 89, emphasis added.)

The chronemic elements of punctuality, duration, and urgency are essential to FtF communication, and therefore understanding these elements will be essential to understanding how digital nonverbals operate within MMC.

Mediated Communication

While there is research surrounding computer mediated communication (CMC), particularly the practices of email and IM users, the mobile conversation is relatively untouched in scholarship. With the skeleton of those nonverbal codes possessing potential digital translation outlined, focus will now turn to research surrounding mediated communication. Theories refuting the presence of nonverbal cues in digital communication will be addressed first, followed by theories acknowledging the potential of nonverbal cues in digital communication. After establishing the theoretical frameworks associated with mediated communication, specific digital communication mediums will be examined, namely the areas of email and instant messaging (IM). Lastly, specific devices found within digital communication such as flaming, digital affiliation cues, emoticons, and emoji will be addressed.

Theoretical background of mediated communication.

Some theories argue that the definition of nonverbal communication and the nature of digital communications are incompatible. Theories supporting this position include Social Presence Theory and Lack of Social Context Cues Theory. Social Presence Theory (SPT) discusses the level in which a person is perceived as “real” in mediated communications, or for the purposes in this paper, digital communications. Scholars find SPT incompatible with nonverbal communication via digital technologies. Short, Williams, and Christie (1976) stress the predominantly negative effects of communication without nonverbal cues, such as depersonalization.

However, the developments of synchronous digital communications, such as instant messaging and text messaging, and the availability of physiological immediacy, overrule previous claims of depersonalization in mediated communications. Tuten and Solomon (2015) note, “[t]he immediate nature of the written word is perceived more like a spoken conversation...for this reason, if you communicate with a friend via AIM or Facebook chat, you may feel that you actually ‘talked’ to her” (p. 113).

The second theory arguing digital communication incapable of including nonverbal codes is Social Context Cues Theory. Walther (2006) writes “nonverbal cues in FtF settings establish the social context of interaction and with the awareness of social context, participants infer and perform normative behavior...this position, like SPT, suggests that the absence of nonverbal cues is the causal factor distinguishing FtF and online interaction (p. 463).

Theorists believe a lack of social presence and context cues in mediated communication only produces cold or task-related communication (Walther, 2006). The most notable error with believing mediated communication incapable of generating warmth and friendliness in discourse is the presumption that social context is forgotten when engaging in mediated communication.

Yet when social context is established in FtF, this contextual framework transfers throughout *all* modes of discourse, including mediated communications. While social and relational contexts are constantly in flux, typical MMC users actively engaged in *both* spheres—FtF interactions and digital interactions. Even more so, MMC users transition seamlessly between the two, juggling interactions taking place FtF, and those occurring within MMC. Sometimes conversations begin FtF and finish through text messaging. Because of this, the premise of both SPT and lack of social context cues theory is void.

While there are some theories that discount the credibility of digital communication, believing nonverbal cues nontransferable, others highlight the pervasiveness of digital communication. Welles, Rouse, Merrill, and Contractor (2014) note former scholars concluded “online relationships were, at best, poor approximations of their offline counterparts...the reduction in contextual, visual and nonverbal cues on the Internet makes CMC insufficiently rich...” (p. 2). While digital conversations were formerly regarded as a poor substitute for FtF interactions, current scholars are now more aware of, educated about, and interested in mediated communication. Originally curated by seminal mediated communication theorist Walther (2006), the following theories demonstrate the ways in which mediated communication users “exploit” and work through the lack of nonverbal cues.

Social Information Processing theory (SIP) argues nonverbal cues relied upon in FtF communications translate into verbal content, linguistics, stylistics, and chronemic cues in the CMC environment (Walther, 2006). Furthermore, central to SIP is the premise that “CMC is as capable as FtF communication...based on the substitutability of verbal and nonverbal cues...” (Walther, 2006, p. 466). SIP holds that all information can be expressed through a variety of modalities, but acknowledges that written cues alone may be less efficient compared to a

simultaneously multimodal exchange (i.e. an exchange consisting of kinesic, vocalic, and verbal codes) (Walther, 2006).

A second theory showcasing the significance of mediated communication is Hyperpersonal Interaction theory. This theory notes the reduction of nonverbal cues in CMC allows the senders to engage in selective self-presentation when constructing a message, which is not possible in FtF interaction (Walther, 2006). Furthermore “CMC users can create more intentional messages and avoid unintentional cues. The ability to edit text messages enhances this effect... The CMC process frees users from needing to attend to one’s own nonverbal behavior,” (Walther, 2006, p. 465). Monitoring one’s own nonverbal behavior is possible, however several nonverbal cues are difficult, or even impossible, to control; such as regulatory and adaptive cues, those a speaker is unaware of. Without the option to “attend to one’s own nonverbal behaviors” MMC users channel efforts previously applied to monitoring nonverbals into creating an authentic communicative experience.

A review of computer-mediated communication.

In addition to these theories supporting the nonverbal capabilities of mediated communication, current scholarship exists analyzing specific digital communication mediums namely email and instant messaging (IM). Several scholars offer specific interpretative strategies and insight to the realm of CMC, illustrating key functions, attributes, and properties of digital communications as a whole. Duncan-Howell (2009) developed an electronic communication conversational analysis framework (eCaf) in an attempt to better understand the complexity of meaning within electronic messages. Duncan-Howell (2009) proposed:

Text-based messages commonly used in computer-mediated communication (CMC) have unique characteristics. While they are written texts, they do not share

the same features as traditional written communication and contain more characteristics of spoken communication. (p. 1014-15)

While there are numerous components of CMC that are distinct from FtF communication, there are several areas of overlap. Duncan-Howell (2009) demonstrates how online discussions do not follow typical conversational patterns (see table below.)

Table 2: Comparison of characteristics of face-to-face and online discussions³

| FtF / “Real-Time” Conversations | Online Discussions |
|--|---|
| Conversations are immediate and dealt with in real time | Messages are more permanent. They may sit in an email inbox for an indefinite period of time. |
| Conversations may be referred to, but details are lost as time passes. | Messages can be re-read indefinitely |
| Conversations are personally relevant to those participating | Messages may be referred to by name, content or by the date it was sent. |
| Conversations are shorter and are conducted within a time frame | Messages may be sent to an individual or group |
| | Electronic discussions may be carried on over longer periods of time |

One of the first forms of computer-mediated communication was email. According to Hara, Bonk, and Angeli (2000) the asynchronous capabilities of text-based CMC allows for more thought, reflection and information processing. Asynchronous here relates to the use of an electronic communication method that sends data in one direction, without immediate response, such as email. Easton and Bommelje (2011) were interested in the abundance of email in today’s organizational culture and their study isolated one aspect of email communication: message interpretation when a response is delayed or absent. Using media richness theory and social attribution theory, Easton and Bommelje (2011) studied how self-perception and perception of others forms due to a lack of response.

³ Copyright Permission 2016. For full details see Appendix G.

Whereas the digital communication medium of email is asynchronous, IM is synchronous (simultaneous interaction,) which simulates a more natural, conversational, or instantaneous rhythm. Frequent messaging is noted consistently as a critical factor in virtual group trust, affective relations, and effectiveness (Walther & Bunz, 2005). Tagg's (2012) article, "Scraping the barrel with a shower of social misfits: Everyday creativity in text messaging," highlights language creation within synchronous messaging, namely unconventional spelling and wordplay. Specifically, Tagg (2012) identifies how the interaction patterns of synchronous messaging mediums such as IM contributes to the development of creative language practices in users:

1. Like spoken conversations, "synchronous" online interaction is often informal.
2. Relations are equal.
3. Participants "jointly co-construct playful discussion with the aim of aligning, harmonizing, and sharing ways of seeing, therefore reforming and reinforcing the informality of the relationship.
4. Online conversationalists compensate for a lack of paralinguistic cues, such as voice quality and gesture, by exploiting written forms through unconventional spelling...and wordplay. (p. 483)

These four examples suggest vocalic code intentions by users, and represent potential digital nonverbals for MMC users. Specifically, what Tagg (2012) notes as exploiting written texts through unconventional spelling and wordplay as a way to compensate for a lack of paralinguistic cues, is further illustrated through the discoveries of Sherman, Michikyan, and Greenfield (2013).

Sherman, Michikyan, and Greenfield (2013) also studied creativity in IM and determined ways in which users convey emotion and emphasis in text based environments. The author's

found nonverbal elements within IM, and termed them “digital affiliation cues.” Digital affiliation cues include: emoticons (☺, ☹), typed laughter (LOL, HAHA), excessive letter capitalization and/or punctuation (HEY R U THERE?!?!?!), as well as letter repetition (I am sooooo bored) (Sherman, Michikyan, & Greenfield, 2013). Although office colleagues previously depended upon IM for quick communication, corporate, professional, and even social settings regard IM as archaic. However the discoveries of Tagg (2012) and Sherman, Michikyan, and Greenfield (2013) prove noteworthy as they allow for the transference of the synchronous interaction principles and devices of IM to the equally synchronous medium of MMC.

Mobile phones were originally intended for “voice-based communication” but now even the most basic mobile phone is equipped with text messaging capabilities, which often “facilitate new forms of social interactions” (Mahatanankoon & O’Sullivan, 2008, p. 973). Tagg (2012) correlates the previously popular digital communication channel of instant messaging to the more relevant form of texting in stating: “texting may be closely similar to online chat and instant messaging because of the dialogic way in which users tend to exploit them, as well as the lack of multimodality” (p. 483).

Therefore, the lack of paralinguistic cues, or *vocalic* cues, available to IM users results in user compensation for, and creative exploitation of, the functions available to users on mediated communication devices. Based on the findings of Tagg (2012) and Sherman, Michikyan, and Greenfield (2013) IM users utilize unconventional spellings and wordplay, specifically typed laughter, excessive letter capitalization, excessive punctuation, and letter repetition. Therefore these same elements will be looked for within text messaging and MMC to determine if these same manipulations take place, and if so, for what purpose?

The Culture of Millennials and Mobile-Mediated Communication

Some claim nonverbal communication is not truly language because it is not rule governed; nonverbal cues produce multiple meanings and are often ambiguous. Burgoon, et al. (1996) argues against this premise for disqualifying nonverbal cues as language, stating:

Most nonverbal cues have no single meaning, which is often cited as evidence against nonverbal behaviors forming language. Yet this is no different from the property of polysemy in verbal language...*one must rely on context and culture to decide which interpretation to select.* Many nonverbal behaviors depend on simultaneously occurring verbal and nonverbal information for their interpretation. (p.153, emphasis added)

Closer inspection confirms communicators follow rules both in the construction of nonverbal expressions and in the interpretation. The best evidence of this is one's ability to recognize "ungrammatical" expressions, or unorthodox combinations of signals (Burgoon, et al., 1996). Furthermore Burgoon, et al. (1996) note the presence of display rules demonstrates evidence that there are rules managing nonverbal behaviors, "each *culture* can easily articulate what behaviors are considered appropriate or inappropriate for use in various contexts" (p. 154, emphasis added). The idea that culture influences nonverbal behaviors in FtF communication, suggests the same can be true for nonverbal behaviors within MMC.

Although eras of desktop email and instant messaging have passed, the communicative functions of these mediums are preserved in today's dominant form of mediated communication: *text messaging*. This form of communication cannot be understood without simultaneously examining the culture in which it operates. Burgoon et al. (1996) note, "[t]o identify norms of behavior, it is essential to understand the background against which the behavior is performed,"

(p. 45). Therefore the characteristics of Millennials, or digital natives, and their relationship to, and interaction with, MMC will be addressed.

Millennial culture includes those born after 1980, specifically those between 18 and 29 years of age (Krohn, 2004). This generation is often referred to as digital natives because they have grown up using technologies such as computers, smartphones, and tablets (Krohn, 2004). The term “digital native” originated by Marc Prensky in 2001 (Tuten & Soloman, 2015). Although the Millennial generation does not make up the majority of the population, the group possesses substantial influence in mediated communication. For instance, Millennials constitute for one-third of mobile consumers in the United States, and 90% of these mobile users send and receive text messages (Mahatanankoon, 2007).

Today’s college students have never known a world without computers. For them to communicate electronically is natural, and this has strong implications from a communication standpoint. Born in an era of technological innovation and expansion, today’s college-aged student represents the most advanced users of text messaging (Mahatanankoon, 2007). Sherman, Michikyan, and Greenfield (2013) note those young people who grew up immersed in technology and relying on mediated communication, and who continue to use it voraciously, are uniquely adapted. The skills of digital natives create high levels of functioning known as “digital literacy” (Krohn, 2004). Furthermore, “computerized communication is second nature to Millennials who rely upon e-mail and electronic communication to a maximum degree” (Krohn, 2004, p. 326).

Familiarities with mediated communication allow Millennials a higher level of comfort with electronic communication than their older peers, parents, and teachers (Krohn, 2004). According to Sternbergh (2014) “Millennials, as a generation, were raised in a digital

environment—navigating, for the first time, digital relationships as an equally legitimate and in some ways dominant form of interpersonal interaction,” (n.p.). The likelihood of Millennials to use mediated communication as the dominant, or preferred, method for interpersonal interactions demonstrates potential for emoji and previously established vocalic cues to function as digital nonverbals in MMC. Having established Millennial culture in which the majority of MMC takes place, and where emoji and other digital nonverbals are relied on, closer inspection of emoji formation will be reviewed.

History of emoticon and emoji.

The use of email eliminates visual cues such as head nodding, facial expressions, posture, and eye contact found in FtF communication; therefore “CMC users often incorporate emoticons as visual cues to augment the meaning of textual electronic messages” (Rezabek & Cochenour, 1998, p. 201-202). Emoticons, the ancestor of the now evolved emoji, were frequently chosen as a form of nonverbal expression for CMC users. Krohn (2004) argues, “emoticons are clearly intentional uses of nonverbal communication that should bring into question their effectiveness as communicating emotions” (p. 322). Emoticons have been depended upon in CMC, email, instant messaging, and now manifest in text messaging as emoji. Therefore it is important to understand the history of these devices and their functional implications.

Commonly misconceived as a synonym for emoji, emoticons are rather the initial iteration of emoji, the antecedent to what emoji is today. Emoticons are “punctuation marks that viewed sideways resemble facial expressions” (Krohn, 2004). The best known of these symbols are “a smile, wink, and frown, respectively: :-) ;-)-:-(“ (Danet, Ruedenberg-Wright, & Rosenbaum-Tamari, 1997, n.p.). The use of emoticons can be traced back to the 19th century, when they were used in casual and humorous writing (Sternbergh, 2014). The first noted use of

emoticons occurred on September 19, 1982 and is attributed to Scott Fahlman, who proposed to use :-) and :-(to distinguish jokes from more serious posts on the computer-science message board of Carnegie Mellon University (Krohn, 2004; Novak, Smailović, Sluban, & Mozetič, 2015). More recently, scholars have examined the role of emoticons within email and IM in the organizational setting. Perhaps one of the first examples of literature noting emoticons as nonverbal communication within CMC comes from Blackman and Clevenger's (1990) study finding how the deliberate use of "pictographs" within email as an intentional substitute for nonverbal cues.

While the emoticon dominated CMC channels, emoji may be understood as an evolved emoticon, tailored specifically for MMC. Commonly attributed as a function for emotional expression, emoji encompasses much more complexity than its precursor, the emoticon. According to Novak, Smailović, Sluban, and Mozetič (2015) "an emoji is a graphic symbol, ideogram, that represents not only facial expressions, but also concepts and ideas, such as celebration...or emotions, feelings, and activities" (p. 1). Emoji originated in Japan during the late 1990s. The Japanese telecom company NTT DoCoMo previously used the heart symbol as a gimmick in its text facility and desired a way to distinguish its pager service and entice teenagers away from its competitors in a very tight market. One of the NTT DoCoMo employees, Shigetaka Kurita, produced the idea of adding simplistic cartoon images to text as a way to appeal to their target audience. With pencil and paper, Kurita began sketching out the possibilities. The first emojis were 12 by 12 pixels, inspired by manga (Japanese comic books,) and kanji (borrowed Chinese characters and street signs) (Cocozza, 2015; Novak, et al., 2015; Sternbergh, 2014).

The term “emoji” is a Japanese neologism that means, more or less, “picture word” (Cocozza, 2015; Novak, et al., 2015; Sternbergh, 2014). Kurita’s initial batch of 176 emoji represented a wide range of human emotion and produced a template for more detailed emoji lexicons to follow. Soon after NTT DoCoMo’s competitors embraced Kurita’s emoji. Furthermore when Apple released its first iPhone in 2007, it included an emoji keyboard, intended only for users in Japan. However users in the U.S. discovered emoji by downloading a Japanese language app, iPhone customers could also access the emoji keyboard. In 2011, after only 4 years, emoji became an international standard on iOS (Cocozza, 2015; Sternbergh, 2014).

The current emoji palette contains 722 symbols. These are officially encoded by the Unicode Consortium, which was founded in 1990. Unicode is an international programming standard that enables users with different operating systems to send emoji and maintain legibility. Basically Unicode ensures emoji sent from an iPhone is legible to an Android user, and vice versa (Sternbergh, 2014). In order to create an emoji, one must submit a proposal and rationale to the Unicode tech committee. The process of proposal to emoji release takes approximately two years (Cocozza, 2015). As of August 2015, there is a total of 1,282 emojis listed in Unicode’s emoji dictionary (including all varieties;) however most operating systems provide access to only 800 emoji (Cocozza, 2015; Novak, et al., 2015).

Emoji as surrogate of nonverbal codes, emotion, and sentiment.

Having established a detailed history of emoticon and emoji creation, literature connecting emoji with emotional expression and nonverbal cues will be reviewed. When emoticons were the predominant digital nonverbal in CMC mediums such as email and IM, smiley dictionaries circulated in the Internet, containing hundreds of variations and the verbal labels of their alleged emotional equivalents (e.g., Godin, 1993; Sanderson, 1993). Walther

(2006) is the one of the earliest to analyze emoticons functioning as nonverbal code surrogates: “Emoticons are assumed widely to express emotion and are frequently described as *emotional surrogates* in CMC for facial expressions and other nonverbal cues to emotion” (p. 469, emphasis added). Additionally, Sternbergh (2014) notes emoji, the evolved emoticon, can “augment” traditional FtF cues as surrogates for facial expression:

In lieu of being able to read each other’s faces...we’ve developed these *surrogate* faces. They’re simple. They’re silly...But they work, at least a little, at least right now. We blow each other kisses. We smile with hearts in our eyes. We cry tears of joy. We say “I love you,” but in a million different ways, each one freighted with the particular meaning we hope fervently to convey, then send them out hopefully, like a smiley face in a bottle, waiting to be received by the exact person it was intended for, and opened up, and understood completely. (n.p.; emphasis added)

Cocozza (2015) also notes that emojis are more than cute smiley faces, they are actual *facial expressions*, indicative of emoji’s ability to represent particular emotions (n.p).

Walther and D’Addario (2001) explored the “functional dynamics,” of emoticons. They analyzed relationships verbal messages and emoticons by calculating the emotional valence of verbal messages paired with emoticons. This investigation lead to three possible results: positive supplementation (a positive verbal message plus a positive emoticon), negative supplementation (negative verbal message plus a negative emotion), or modification (a positive element plus a negative element,) causing the message to “cancel out,” and producing a neutralized effect overall. Walther and D’Addario (2001) also found that an emoticon’s valence might override the valence of the verbal statement. For instance, combinations of positive and negative elements

(such as a positive emoticon coupled with a negative message, or a negative emoticon with a positive message) could result in an interpretation of sarcasm. The researchers also noted the iconic ;) or “winkie” emoticon typically indicates sarcasm.

Due to the amount of research supporting the emotional function of emoticons, it is commonly understood emoji are expressions of emotion as well. While this is a logical deduction, few scholars validate this assumption with evidence. The findings of Walther and D’Addario (2001) produced an understanding of emoticon emotional valence; however a large-scale analysis of *emoji* emotional capabilities was not studied until 2015. Novak, et al (2015) pursued the following hypothesis: “Are the tweets with emojis more emotionally loaded? Does the presences of emojis in tweets have an impact on the human emotional perception of the tweets?” (p. 5).

The researches engaged 83 human annotators to derive emoji sentiment from the tweets in which they occurred. Novak et al. (2015) drew a sentiment map of 751 emojis, compared the differences between tweets with and without emojis, the differences between more frequent and less frequent emojis, the emoji positions in tweets, and the differences between emoji use in 13 languages (p. 3). Collectively, 1.6 million tweets in 13 European languages were labeled with sentiment polarity of negativity, neutral, or positive (Novak et al., 2015, p. 3). Results of the study lead to creation of the first emoji sentiment lexicon, or the Emoji Sentiment Ranking; and Novak et al. (2015) created a sentiment map of the 751 most frequently used emojis. The authors were even able to determine the emojis linked to positive sentiment⁴.

Literature on emoticons and emojis frequently asserts their substitutability for emotional cues and facial expressions, however there are those who firmly believe there is unique value to nonverbal cues that cannot be replaced, or translated to communication other than FtF, and very

⁴ For an example of emoji positive emoji sentiment see Appendix B, Figure 10.

little research has examined the functional impact of the emoji and emoticon symbols (Walther, 2006).

Methodology

Sample

This study examined the text messaging behaviors of Millennial-aged Smartphone users to better understand the presence of digital nonverbals in MMC. To enlist participants, an email containing a hyperlink to a web-based questionnaire was distributed to a mass mailing list of undergraduate students at a large private liberal arts university in the Mid-Atlantic United States. The mailing lists were comprised of Communications 101 students and English 101 students. These two general courses were selected based on them being customary for underclassman to enroll in, and thus was a logical selection for the desired age range. In addition to the email, an announcement outlining objectives of the study and encouraging participation was made in both seminars.

The opportunity to receive extra credit was used as a participation incentive for only the Communications 101 students. Although one class was granted the opportunity to receive extra credit by the master teacher, failure to complete the survey resulted in no penalty. As a Communications 101 Graduate Student Assistant the primary researcher oversees 37 students enrolled in the course. There was no contingency for the students who chose to take the survey, and no grade was negatively impacted if student chose not to take the survey. Not all of the primary investigator's students took the survey.

Emails were sent to 688 students enrolled in Communications 101, and 616 students in English 101 totaling 1,304 undergraduate students receiving an email. 439 (33.7%) completed the survey. The final sample consisted of 439 undergraduate students, 209 male (48%) and 230 female (52%). The respondents were between the ages of 18-29 in accordance with the defined age parameters of the Millennial generation.

Instrument

A web-based questionnaire was distributed by mass email to 1,304 college students. The questionnaire consisted of 63 questions and addressed text-messaging behaviors of Smartphone users. The questionnaire focused on the following text messaging behaviors: emoji, typed laughter, excessive capitalization, excessive punctuation, repeated letters, and response time. The questionnaire included six sections, each section addressing one text messaging behavior. Whenever a new text messaging behavior was introduced, the section began on a new webpage (i.e. all questions pertaining to emoji were on the first webpage, all questions pertaining to typed laughter on the second, etc.). The rationale for this decision was to offer distinction between each behaviors and user-friendliness.

Upon the chance of unfamiliarity with the text messaging behavior under review, definitions and examples were provided for all text messaging behaviors. The primary investigator wanted to ensure participants had clear understandings of each text messaging behavior included. Definitions of typed laughter, excessive capitalization, excessive punctuation, and letter repetition were all derived from Sherman, Michikyan, and Greenfield (2013). The difference between emoticon and emoji was established and illustrated; as well the different manifestations of emoji across several operating systems was illustrated with the following graphic:



Each section examining a different text messaging behavior included various question formats. These various question formats addressed six ways specific ways to use the behavior: (1) text message behavior *usage*, (2) text message behavior *frequency*, (3) *relationship* to text message recipient, (4) text message *response time*, (5) text message behavior *representation* and (6) text messaging behavior *interpretation*. These six question types are listed in the table below, as well as the corresponding question format the survey participant would answer.

Table 3: Text Messaging Behavior Survey Question Formats

| Text Message Behavior | Question Format |
|-----------------------|--|
| Usage | 1) Do you use [<i>digital nonverbal</i>]? |
| Frequency | 2) How often do you use [<i>digital nonverbal</i>]? |
| Relationship | 3) I use [<i>digital nonverbal</i>] when texting my [<i>relationship type</i>]. |
| Response time | 4) When [<i>relationship type</i>] texts me, I try to respond... |
| Representation | 5) Do you feel better represented when using [<i>digital nonverbal</i>]? |
| Interpretation | 6) Do you understand text messages better when [<i>digital nonverbal</i>] is used? |

Questions measuring text messaging behavior *usage* required “Yes” or “No” responses. Respondents answering, “Yes” would subsequently answer questions regarding *frequency*, *relationship*, *response time*, *representation*, and *interpretation*. Skip logic was utilized so that respondents answering “No,” to text messaging behavior *usage* questions would be directed to the next section of text message behaviors. The rationale to use the skip logic utility was to prevent redundancy. For example, respondents answering “No, I do not use emojis while text messaging,” would avoid having to answer “How often do you use emojis while text

messaging?” Instead participants answering “No” would skip directly to the next text message behavior section: “Do you use typed laughter?”

Regarding questions of behavior frequency, classifications of frequency levels were explicitly defined, so that differences among participant interpretation were avoided. The scale “Very Frequently,” correlated to using a particular behavior “in almost every text.” The scale “Frequently” correlated to using the behavior “in most texts.” The scale “Sometimes,” correlated to using the behavior “in a couple texts,” while the response “Rarely,” correlated to “only a few texts.” The response “Never” was assumed to correlate to never using the behavior, and not explicitly defined.

Out of the 63 survey questions, 7 questions pertained to text message behavior *usage*. Of these seven, five questions were included in the results and analysis. Omitted questions include “Do you use typed emoticons while text messaging,” and “Do you use both typed emoticons and emoji while text messaging?” These questions were omitted because research demanded closer attention be paid to emoji rather than emoticon. Although participants indicated emoticons were somewhat used in MMC, current literature regarding emoticon use is sufficient and this survey’s questions would not contribute new, contrary, or significant information.

Out of the 63 survey questions, 5 questions pertained to text message behavior *frequency*. Questions measuring text messaging behavior frequency utilized a 5-point Likert scale ranging from the previously defined scales of “Very Frequently” to “Never.” Questions regarding text messaging behavior frequency were included to indicate an attitude of affinity. The interpretation of frequency questions followed the following rationale: the more frequently used a behavior is, the more positive the attitude toward that behavior. Therefore text messaging behaviors occurring “Very Frequently” or “Frequently” indicated a user’s positive attitude towards, or

liking of, that behavior. Low frequency of behavior, indicated by the responses of “Rarely,” or “Never” indicated a negative attitude or lack of affinity.

Out of the 63 questions, 20 were questions relating text message behavior and *relationship*. The behaviors included use of emoji, typed laughter, excessive punctuation, excessive capitalization, and repeated letters. The relationship types included in these questions include family (explained as parents or siblings), friends, romantic partner or interest (explained as boyfriend/girlfriend/spouse), and acquaintance. Questions measuring the association between a text messaging behavior and a respondent’s relationship to others utilized a 5-point Likert scale ranging from “Definitely True” to “Definitely False.” The following is an example of this type of question: “I use emoji when texting my friends.”

In this question the text messaging behavior under review is “emoji,” and the relationship type under review is “friends.” The design of these questions demonstrates how different relationship types influence a text messenger’s decision to include or exclude certain text messaging behaviors. Furthermore, the relationship types included offer clarity regarding how intimacy and familiarity provoke or hinder certain text message behaviors. The intent for including these questions was to demonstrate if some texting behaviors are more likely used for a certain relationship type over others.

In addition to testing text message behavior usage and corresponding relationship type, to better potential *chronemic* codes in MMC, questions concerning response time were included and associated with relationship type. Of the 63 questions in the survey, 4 questions pertained to relationship type and response time. Scales included “Immediately,” and “Within 5-10 minutes,” and “Within the hour,” and “Sometime that day,” and “Not sure / I don’t really think about it.” Relationship types were the same as previously stated: family (parent or sibling), friends,

romantic interest, and acquaintance. The goal for including this question type was to demonstrate possible correlation between relationship type and response time.

Questions measuring text message behavior and *representation* and *understanding* are the last question format type. Of the 63 questions, 6 questions pertained to representation and understanding. These questions addressed whether or not respondents felt they could better represent their emotional state, or better understand the emotional state of others, based on using a particular text messaging behavior. Scales were “Yes,” “No,” and “Not sure.” Although these responses may seem limiting compared to other question formats, these scales were designed to indicate clarity. Self-awareness regarding emotional representation and message understanding is difficult, and therefore the rationale was fewer options decrease complexity and encourage decisiveness. These types of questions demonstrate how digital nonverbals aid with comprehension and understanding. Just as nonverbal codes aid in the transmission of verbal messages in FtF dialogue, these questions seek to understand if digital nonverbal codes aid in the transmission of textual dialogues in MMC.

In addition to the six questions formats, each text messaging behavior lent itself to have particular uses that also needed to be addressed. These questions derived from previous research supporting their inclusion. It is understood that these questions may need to be eliminated for being leading questions. However the intent was to test current cultural understandings of behavior usage, test familiar cultural practices of behavior usage, and test if previous rationales behind the text messaging behaviors under review in this study are similar, or universal. These questions do not fit into the table outlining question formats above and therefore will be listed separately.

“I use emojis while text messaging to convey my emotions or depict my emotional state.”

This question was included specifically because researchers have previously found the use of emoticons directly tie to emotional expression, and the primary researcher wanted to know definitively if the same could be considered of emoji.

“I use excessive capitalization when text messaging to imply shouting or yelling” and “I use excessive capitalization when text messaging to imply excitement or surprise.” Previously referred to as “flaming” (Krohn, 2014; Tuten & Solomon, 2015), these questions were included to demonstrate if the use of all capitals in MMC was only to represent anger or other negatively associated emotions.

Similarly, the same types of questions were asked in regards to excessive punctuation and repeated letters: “I use excessive punctuation in text messaging when I want to emphasize a word or phrase” and “I use excessive punctuation in text messaging to imply shouting or yelling,” and also, “I use repeated letters in text messaging when I want to emphasize a word or phrase.” Once again these questions were included based on previous understandings of emoticon functions.

Having outlined the question formats and specific text messaging behaviors under investigation, now the results of the survey will be reported and analyzed for trends or noteworthy discoveries.

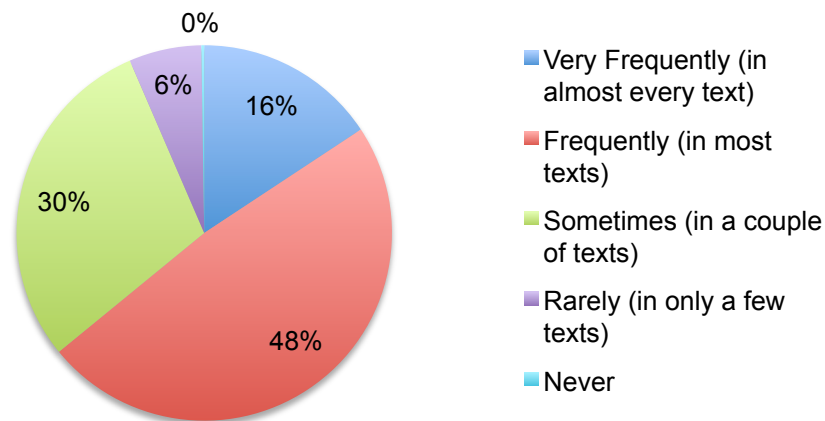
Results

As previously mentioned, not all survey questions were outlined in the method and therefore not all 63 results will be reported or analyzed⁵. Apple's™ adoption of the emoji keyboard in the 2010 iPhone release is perhaps the single most influential factor in the adoption of emoji and led to global popularity (Novak, et al., 2015, p.2). It was expected that the majority of survey participants were iPhone users, and the results proved this hypothesis. 347 out of 439 respondents indicated they were iPhone users, or 79%. The “closest” contender was Android, at 18%. Survey responses will be organized and reported according to the text messaging behavior under review in the question.

Text Messaging Behavior: Emoji

While a substantial number of participants acknowledged using typed emoticons (65%), a more substantial number of participants identified using emoji (91%). Therefore it can be determined that emoji is the dominant or preferred choice of the two devices. A graph detailing the results of emoji frequency is below:

Figure 1. Frequency of emoji use



⁵ For a complete list of questions and results please see Appendix C

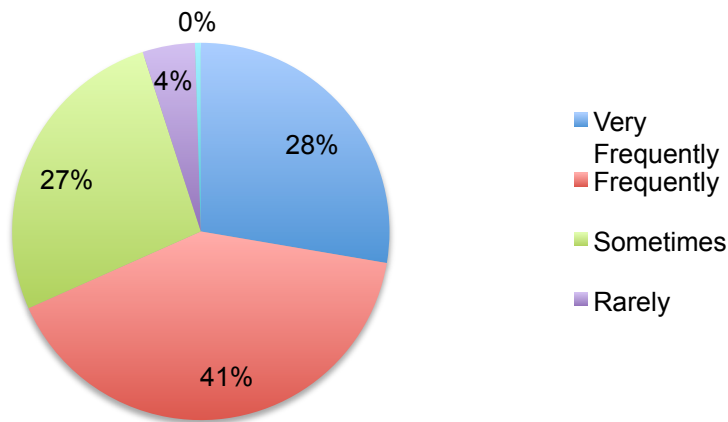
There was no substantial difference across various relationship types and emoji use. The dominant relationship type for participants using emoji “very frequently” was when texting a romantic interest (38%). When texting friends, the majority of participants use emoji “frequently” (41%). When texting family, the majority of participants use emoji “sometimes,” (33%). Lastly the majority of respondents identified using emoji “sometimes” when texting an acquaintance (36%).

There are a few interpretations this data provides. The romantic partner relationship type receives the majority of emoji use, and the friend relationship type is second, which is perhaps demonstrative of MMC users selecting to use the emoji digital nonverbal with others within their Millennial or digital native generation. Another interpretation is perhaps survey participants feel more intimately connected with the relationship types of “romantic interest” and “friend” and therefore emoji is frequently used because of its function as an emotional surrogate or a self-expression device.

For both the relationship types of “family” and “acquaintance” the majority of participants noted using emoji only “sometimes.” While it was reasoned participants chose to use emoji when texting those most likely in their generation, perhaps likewise participants feel disinclined to use emoji when texting parents because of the generational gap. In addition, just as it was reasoned the more intimate nature of the relationship types of “romantic interest” and “friend” produced *more* frequency of emoji use, the detached unfamiliarity of the “acquaintance” relationship type is a possible justification for lack of emoji use with this relationship type.

Notably, when asked, “I use emojis while text messaging to convey my emotions or depict my emotional state,” about two-thirds of respondents identified this as a very frequent or frequent behavior.

Figure 2. I use emojis while text messaging to convey my emotions or depict my emotional state.



Furthermore, when asked if participants felt better represented when using emojis, an overwhelming response of 77% responded “Yes,” with 11% responding “No,” and 11% answering “Not Sure.” Similarly, when asked if participants understand text messages better when emojis were included, the majority responded positively: 78% answered “Yes,” 14% answered “No,” and 8% answered “Not sure.” These results are shown in the figures below:

Figure 3. I feel better represented when I use emojis in text messages.

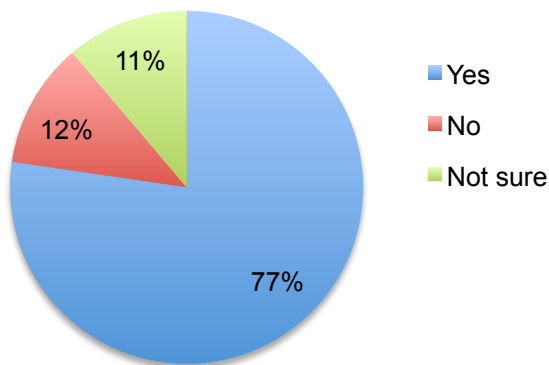
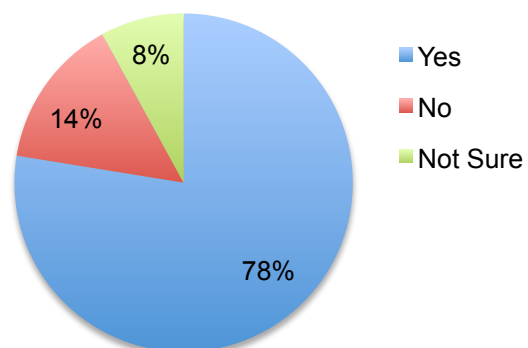


Figure 4. I understand text messages better when emojis are used.



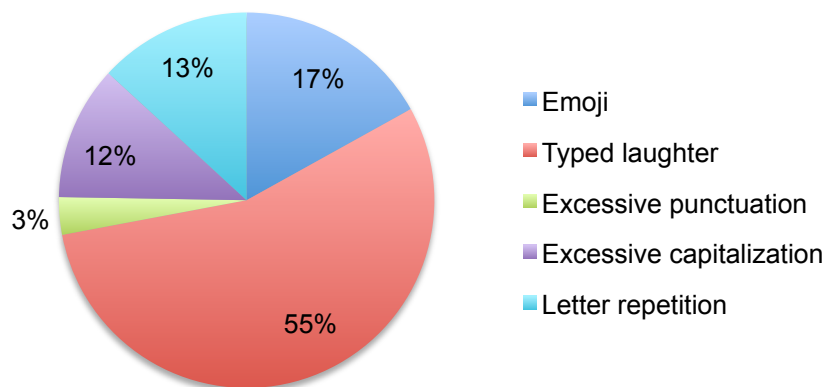
Text Messaging Behavior: Typed Laughter

Following the survey section addressing the emoji digital nonverbal, the survey turned to address the text messaging behavior of *typed laughter*. When asked if typed laughter was used in text messaging an overwhelming 96% answered “Yes,” while only 4% answered “No.”

Questions examining typed laughter clarified that “typed laughter” included “LOL,” and “haha,” and “ha ha,” and also noted “typed laughter” is not limited to these. There are *many* versions of typed laughter, especially extreme or exaggerated cases such as: “Hahahahahaha,” or “lololololololol,” and even the occasional “HA!” or “Bahaha.” While these forms of typed laughter were not addressed in this survey, it is important to note that “typed laughter,” can encompass many versions and variances⁶.

Quite notably, the vocalic behavior of typed laughter proved most popular across all the surveyed text messaging behaviors. Typed laughter received the largest number of participants indicating “very frequently” usage (48%.)

Figure 5. Behaviors used "Very Frequently"



⁶ For a more complete list of typed laughter variations see Appendix D.

Recall that survey participants were instructed to interpret the scale of “very frequently” as using the behavior “in almost every text.” Therefore it is significant to note that above all other behaviors, typed laughter ranks as the most frequently used. Following typed laughter, frequency of emoji use ranks second (17%), frequency of letter repetition third (13%), frequency of excessive capitalization fourth (12%), and frequency of excessive punctuation ranking last at only 3%.

While the relationship type of “romantic interest” correlated to high frequency of emoji use, the category of “friends” proved to be the dominant relationship type for using the typed laughter behavior. 79% of respondents answered “Definitely true” to using typed laughter when texting friends. 63% claim it is “Definitely true” that they use typed laughter with a romantic interest, and 46% identify it is “Definitely true” they use typed laughter with family. Survey participants were least likely to use typed laughter with an acquaintance (only 27% claiming “Definitely true.”)

The data demonstrates a decrease in typed laughter usage when texting an acquaintance, which perhaps suggests how familiarity and intimacy levels affect digital nonverbal usage likelihoods. Lastly, regarding the text messaging behavior of typed laughter, it is notable that 76% of participants indicated feeling better represented when using typed laughter, and 71% indicated understanding text messages better when typed laughter is used. Perhaps it is not that typed laughter actually provides *clarity*, more so that it is those engaged in MMC feel more *comfortable* with the message contents when “softened” with typed laughter. This idea of digital nonverbals softening message contents will be analyzed further in the “Discussion” section of the paper.

Text Messaging Behavior: Excessive Capitalization

At first glance, survey results regarding the text messaging behavior of excessive capitalization seem vague and insignificant. When participants were asked about excessive capitalization usage, 51% identified using the behavior whereas 49% identified as not using the behavior. These nearly even results inhibit clarity regarding the significance of the excessive capitalization behavior. However, questions illustrating situations in which the excessive capitalization behavior *could be used* produced more telling results. For example the question “I use excessive capitalization in text messaging to convey my emotions or depict my emotional state,” indicated the validity of, and the truth behind, the tendency of MMC users to use excessive capitalization to depict emotions (50% of respondents answered “Definitely true,” and 40% of respondents answered “Probably true,” with an overall truth factor of 90%.)

In addition, behavior usage was further clarified by questions positing the use of excessive capitalization and *precise* emotions or feelings:

Figure 6. I use excessive capitalization when text messaging to imply shouting or yelling

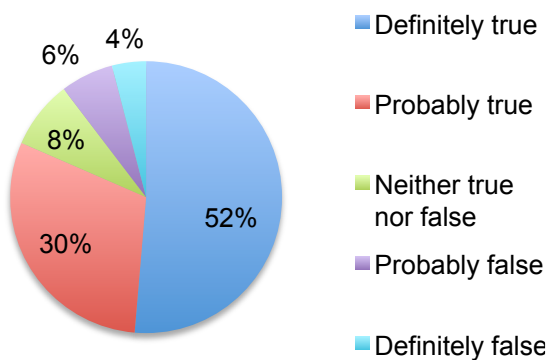
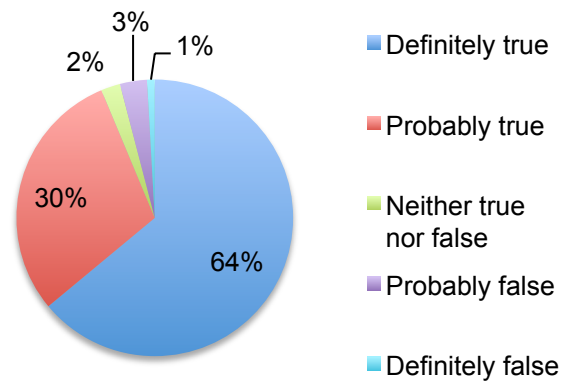


Figure 7. I use excessive capitalization when text messaging to imply excitement or surprise



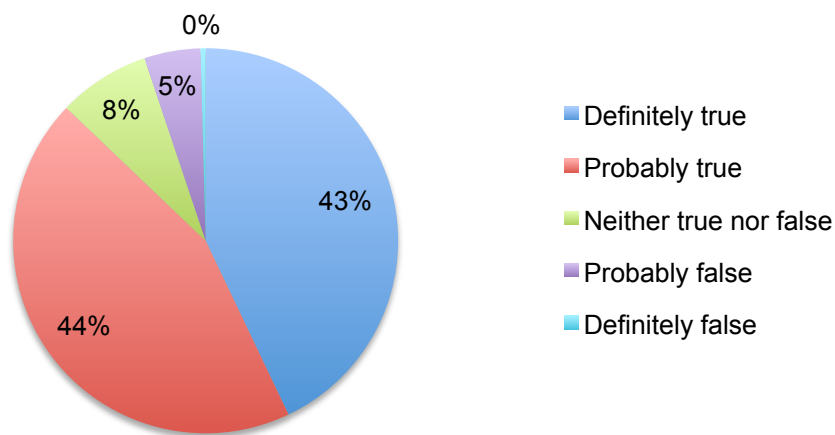
Equally surprising and noteworthy is the fact that this survey pool indicates using excessive capitalization more for excitement or surprise (Figure 7) than for shouting or yelling

(Figure 6). Although not explicitly stated, one may infer shouting or telling to be products of anger, a negative emotion, whereas excitement and surprise denote a version of happiness. It can be suggested that MMC users prefer positive interactions when text messaging, and use digital nonverbals to ensure this positivity. However, the words “shouting” and “yelling” are not solely negative, and the word “surprise” not exclusively positive, therefore the suggestion of MMC users preferring positivity is merely a hypothesis.

Text Messaging Behavior: Excessive Punctuation

Similar to the results of excessive capitalization usage, excessive punctuation usage is fairly split according to survey participants: 53% said “Yes,” to using excessive punctuation and 47% said “No.” When asked how frequently excessive punctuation was used, the majority of participants answered “sometimes” (41%). Based on these two questions respondents appear indifferent towards the behavior of excessive punctuation. However, also similar to excessive capitalization, a question offering respondents a specific use for the behavior countered this indifference:

Figure 8. I use excessive punctuation to convey my emotions or depict my emotional state.



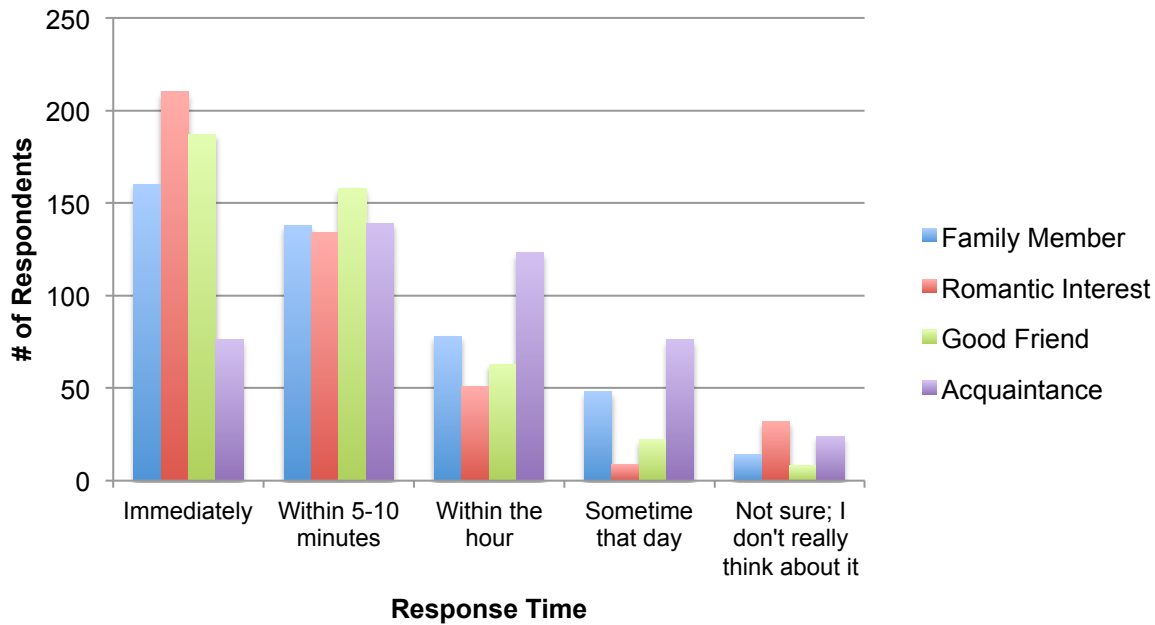
According to the survey excessive punctuation is most used when texting friends, followed secondly by romantic interests, then family members, and lastly, acquaintances. While the data demonstrates that excessive punctuation is not one of the more popular text messaging behaviors, the results also show how and why excessive punctuation is used. Participants indicated a strong tendency to use excessive punctuation for emphasis (88%). Furthermore the results indicate 62% of participants use excessive punctuation to imply shouting or yelling.

Text Messaging Behavior: Repeated Letters

The next section of the questionnaire surveyed participant's use of repeated letters in text messaging. The majority of participants identified using repeated letters in text messaging (61%). When questioned about using repeated letters to convey emotions or depict an emotional state, 71% found this to be true in their own text messaging habits. The predominant answer regarding the use of repeated letters was "occasionally" or "neither true nor false" across all relationship types. This perhaps indicative of participant's indifference towards this particular behavior's functions, as well as irrelevance of using the repeated letter behavior with different relationship types.

Text Messaging Behavior: Response Time

The last section of the survey pertained to digital chronemics, specifically response time, and this area of text messaging behavior proved quite interesting. Some key takeaways from the chronemic section include: (1) Participants replied most quickly to the romantic interest relationship type; (2) however despite relationship type, most respondents tried to reply to texts within 5-10 minutes; (3) and the numbers demonstrate digital chronemics is actively thought about while engaged in MMC (i.e. texters are cognizant of their response time) (Figure 9).

Figure 9. Summary of digital chronemics and response time

Participants replied most quickly to the romantic interest relationship type, indicated by the largest bar in the category of “Immediately.” The bars corresponding to the “Within 5-10 minute” response time scale only slightly distinguish from one another. This is noteworthy because the almost even bars indicate that *despite* relationship type, MMC users attempt to respond to *all* text messages within 5-10 minutes of receipt. Therefore, the five to ten minute range reveals basic MMC etiquette for response time. Furthermore, the last cluster of bars indicates MMC users are actively attentive to their response time. This is evident based on very few participants identifying as being unsure (“Not sure”) or unaware (“I don’t really think about it”) of response time.

Having reviewed the results of the questionnaire, attention now shifts to discussing how the abundant presence of text messaging behaviors warrants establishing a coding suited to handle digital nonverbals in mobile-mediated communication.

Discussion

Having established the basic guiding principles of nonverbal communication, the context of the Millennial culture which both nonverbal communication and mediated communication is taking place, as well as precise insight into one survey pool's use of common text messaging behaviors, it is now time to demonstrate potential translation of traditional nonverbal coding terminology to MMC. This will be accomplished by reiterating nonverbal coding structure, function, and behaviors, as well as evaluating FtF nonverbal codes for "translation potential," or the possibility for a FtF code to have a digital nonverbal translation or presence. This section aims to clarify *why* mobile text messaging is such a prominent channel for discourse by illustrating *how* the presence of digital nonverbals have sustained the integrity of FtF conversations within the text messaging conversation.

Previous nonverbal communication theorists and theories assumed when a conversation does not take place FtF, there are not as many possible nonverbal codes available, and the communication experience as a whole is not as successful. The primary argument for this position is *multimodality*; the more nonverbal codes being used, the more warm or understandable a given communication episode will be (Walther, 2006). However theorists *assumed* many nonverbal codes incapable of reincarnation, when really, as this paper demonstrates, the nonverbal areas of kinesics, vocalics, and chronemics have a strong presence in mediated communication, specifically MMC.

Having extensively studied CMC, Walther (2006) notes the more cue systems available, or by the use of text alone, the better communicators may be able to reach *intended* or *desired* levels of affect" (p. 464). In addition, Riggio (1992) "Interestingly, people in virtual groups have devised a number of creative strategies to compensate for the missing nonverbal cues in

electronic communication” (p. 130). Ultimately, Millennial MMC users intentionally design complexly crafted text messages to recreate their culturally learned nonverbals in the mobile conversation. The manifestation of traditional FtF nonverbal codes in a digital context represents a new frontier within nonverbal communication. As Krohn (2004) states: “traditional definitions of non-verbal communication failed to predict the employment of emotions in computer mediated communication” and “none of the traditional non-verbal communication theorists foresaw the introduction of emoticons as nonverbal communication...they failed to envision nonverbal communication in electronic communication” (pp. 321, 322).

Yet it is not just the emoticon that has evolved to fit MMC. In addition to emoticons, the formerly established “digital affiliation cues” of Sherman, Michikyan, and Greenfield (2013) and chronemic cues of Walther (2006) have also undergone transformation to be better suited for Millennial culture and the mobile context. This section demonstrates the translation of previous nonverbal communication terms and properties to suit the currently dominant form of communication: the mobile conversation. The proposed *digital nonverbals* will be presented following the discussion of their former FtF or CMC nonverbal coding counterpart. Therefore, the traditional nonverbal coding element will be viewed in juxtaposition with its translated digital nonverbal. Overall there will be three digital nonverbal categories reviewed: digital chronemics, digital vocalics, and digital kinesics (or emoji).

Defining digital nonverbal structure

Firstly, the structure of digital nonverbals needs to be established. Recall Littlejohn and Foss’s (2011) structural properties of nonverbal codes:

1. Nonverbal codes are analogic; they form a spectrum or range.

2. Nonverbal codes possess iconicity; they resemble, or mimic the thing being symbolized.
3. Nonverbal codes elicit universal meaning (such as crying or smiling).
4. Nonverbal codes enable transmissions of several messages simultaneously.
5. Nonverbal codes evoke automatic responses.
6. Nonverbal codes are emitted spontaneously.

Although the nature of text messaging simulates instantaneous communication, it is realized that only FtF interactions provide the environment for truly authentic automatic responses and spontaneous emissions of nonverbal codes to take place. Therefore Littlejohn and Foss's (2011) fifth and sixth properties do not translate to MMC. However properties one through four will be further examined to discern how they relate to the mobile conversation.

Table 4. Structural properties of digital nonverbals⁷

| |
|--|
| 1. Digital nonverbals are analogic; they form a spectrum or range. |
| 2. Digital nonverbals possess iconicity; they resemble, or mimic what is being symbolized. |
| 3. Digital nonverbals elicit universal meaning. |
| 4. Digital nonverbals enable transmissions of several messages simultaneously. |

The first structural property of digital nonverbals is as follows: *(1) Digital nonverbals are analogic; they form a spectrum or range.* Just as there is no absolute definition or direct interpretation for nonverbal cues (Burgoon, et al., 1996) digital nonverbals have multitudes of meaning, infinite combinations, and unlimited interpretations. While some digital nonverbals have a single definition (“LOL,” for “laugh out loud,”) interpretation of digital nonverbals depends upon context and culture, the same way that FtF does. Therefore digital nonverbals have

⁷ List adapted from Littlejohn and Foss (2011)

a range of meaning, and can be understood as operating on a spectrum. To better understand emoji as operating on a spectrum, Sternbergh (2014) highlights the versatility of emoji:

Emoji have proved to be well suited to the kind of emotional heavy lifting for which written language is often clumsy or awkward or problematic, especially when it's relayed on tiny screens, tapped out in real time, using our thumbs. These seemingly infantile cartoons are instantly recognizable, which makes them understandable even across linguistic barriers. Yet the implications of emoji—their secret meanings—are constantly in flux. (n.p.).

This passage alone demonstrates how emoji is flexible and has a broad range of capabilities. Furthermore, because emojis are “instantly recognizable...even across linguistic barriers” they can possess unique universal meaning. The “flux” Sternbergh (2014) speaks of may also be understood as “fluidity,” a term that once again demonstrates the flexibility of emoji.

Furthermore, the second structural property of digital nonverbals is: (2) *digital nonverbals are iconic*. For example, a smiling emoji is iconic of a smiling face; the emoji is a “look-alike” of what it is representing. Likewise, an MMC user who types “ha ha,” simulates the sound of laughter with iconic representation. The third structural property is (3) *Digital nonverbals elicit universal meaning*. According to Dimson (2012), who studied emoji use in conjunction with text on the mobile application Instagram, “emoji are becoming a valid and near-universal method of expression in all languages,” (n.p.). Finally, (4) *Digital nonverbals enable transmissions of several messages simultaneously* is applicable to MMC in the same way that multimodality applies to FtF interactions. The MMC user is able to use multiple digital nonverbals within one text: “WHAAATTT???? 🤪” (excessive capitalization, excessive punctuation, letter repetition, and emoji.)


Having established the structural nature of digital nonverbals by demonstrating the similarities of FtF nonverbals to digital nonverbals in MMC, attention will now turn to the translation of nonverbal coding functions to digital nonverbal functions.

Defining digital nonverbal functions

With the structural framework of digital nonverbals outlined, a question that must now be addressed is, “How might nonverbal codes *function* in a digital context?” or more specifically, “How do traditional nonverbal codes *behave* as digital nonverbals?” Regarding nonverbal codes, seminal theorists Ekman & Friesen (1969), Burgoon et al. (1996), and Knapp and Hall (2002) note the following key functions: Nonverbal codes (1) *repeat* what is said verbally; (2) *substitute* for portions of the verbal message (partially or entirely), (3) *complement or clarify* the verbal message; (4) *contradict* the verbal statement; (5) *emphasize* (i.e. pointing or yelling) or *elaborate* the verbal message; (6) *accent* or *moderate* verbal messages, and (7) *regulate* verbal messages. The seven functions listed above translate entirely to digital nonverbals (Table 5).

| Nonverbal Function | Kinesic / Emoji | Vocalic | Chronemic |
|---------------------------|------------------------|----------------|------------------|
| Repeat | ✓ | ✗ | ✗ |
| Substitute | ✓ | ✗ | ✗ |
| Complement or clarify | ✓ | ✓ | ✓ |
| Contradict | ✓ | ✓ | ✓ |
| Emphasize or elaborate | ✓ | ✓ | ✗ |
| Accent or moderate | ✓ | ✓ | ✓ |
| Regulate | ✓ | ✓ | ✓ |

Functions of digital kinesics.

Digital kinesics manifest as emoji. Emoji are capable of repeating what is sent, such as “I love you ,” and substituting for parts of the text message or the entire text message, for

⁸ Adapted from Ekman and Friesen (1969), Burgoon et al (1996), and Knapp and Hall (2002)

example, “👍” substitutes for “Good job.” Furthermore, emoji complement or clarify the text message. Consider the following example message: “I have to work late 😡.” In this example the emoji complements the text in the message by supplying emotional insight. At the same time the emoji also clarifies the *precise* emotional sentiment of its sender. While the text itself may lead the message receiver to discern a state of unhappiness, (after all who wants to be working late?) “I have to work late” possesses ambiguities. The sender is unhappy to be working late; but specifically the individual is experiencing anger. An equally suitable emotion for having to work late might display as sadness “I have to work late 😞;” however using an emoji that conveys anger allows the message recipient to verify the precise meaning of the text message. Emoji complement text messages; but even more so emoji *clarify* text messages, not only does this ensure the exchange of correct information, but also it guarantees an authentic interaction between recipients because emotional sentiment is preserved.

Emoji also contradict the text message, which typically invite playful or sarcastic interpretation (Krohn, 2004; Coccozza, 2015). In keeping with the previous example, the contradictory message “I have to work late 😏,” could either an innuendo or white lie. The fifth nonverbal function emoji possess is the ability or emphasize or elaborate the text message: “I’m so excited you’re coming!” can be emphasized and elaborated with the multimodality of emoji: “I’m so excited you’re coming 😄👏”

In addition to these functions, Emoji are also able to moderate text messages. According to Scherer (1980), nonverbal cues such as hand gestures and body movement work to establish rhythm within a conversation, as well as provide structure, pattern, and punctuate communication. Emoji use in MMC can be understood as behaving the same way: establishing conversational rhythm, or moderating or regulating text messaging. The ability of emoji to

moderate text messages is one of the most significant aspects of emoji as digital nonverbal.

According to Sternbergh (2014) “[t]he word that came up multiple times, in many conversations, with many people about emoji, was *soften*” (n.p.).

Emblematic emoji.

In addition to the nonverbal functions of repeating, substituting, complementing or clarifying, contradicting, emphasizing and elaborating, moderating, and regulating text messages, the idea of emoji being used to moderate, or soften, text message content is consistent with the role of emoji as *kinesic emblem*. According to Ekman and Friesen (1969) emblems are used to derogate, or temper, the impact of what is said verbally. Therefore it can be prescribed that emoji contribute to MMC management and help soften the conversation. The ability of emoji to moderate MMC connects to the final emoji function: regulation. Not only do emoji regulate text messages, but perhaps more accurately emoji regulate MMC in its entirety and unify communications across device applications.

The kinesic element of emblems may repeat, substitute, or contradict part or the entire verbal message. Although emblems can be shown in any area of the body, they are primarily shown in the face and hands. Most importantly, emblems have a direct verbal translation. The test of emblem behaviors evident in FtF communication and manifest in MMC as emblematic emoji include the following: (1) they have a direct verbal translation and can substitute for the words they represent without affecting the meaning; (2) their precise meaning is known by most or all members of a social group; (3) they are most often used intentionally to transmit a message; (4) they are recognized by receivers as meaningful and intentionally sent; (5) the sender takes responsibility for them; (6) they have clear meaning even when displayed out of context (Burgoon, et al., 1996).

It is important to note that with text messaging, there is always prevention of verbal exchange. Emblems are used when verbal communication is not possible or ideal. Emoji is an emblematic digital device that has a direct verbal translation, and well known by all members of a group, class, or culture (adapted from Ekman and Friesen, 1969). Sternbergh (2014) notes emoji is “the signature punctuational flourish of the Millennials,” demonstrating how the Millennial generation as a culture understands the use of emoji (n.p.). Furthermore, Ekman and Friesen (1969) state:

Emblems differ from most other nonverbal behaviors primarily in their usage, and in particular in their relationship to verbal behavior, awareness and intentionality...people are almost always aware of their use of emblems; that is, they know when they are using an emblem, can repeat it if asked to do so, and will take communicational responsibility for it. Similarly, the use of an emblem is usually an intentional, deliberate effort to communicate. (p. 66)

Emblems are used intentionally and like words, the time and place to use an emblem is carefully chosen (Ekman & Friesen, 1969) with consideration to context and the nature of the relationship. Littlejohn and Foss (2011) offer a few examples of emblems: making the “V” sign for victory, making the “peace” sign with one’s fingers, or giving someone a thumbs-up.

Although classifying emoji as emblems encompasses the majority of emoji, there are a few which might be better suited with the title of “illustrator.” It was previously noted that the line between emblem and illustrator is not concrete. However more refined definitions of kinesic illustrators, such as “deictic illustrators” or movements that specifically *point* to an object. Being that the emoji keyboard has a section devoted entirely to hand positions, many of which are pointing, this small section would be best termed “deictic illustrators.”

Affect display.

In addition to emoji being emblematic, emoji also work as kinesic affect display. The affect display element within the kinesic code deals with the face, and specifically facially displayed emotions. The affect display can be related to verbal behaviors by repeating, qualifying, or contradicting what is verbally stated, or the affect display can be entirely separate (Ekman & Friesen, 1969). Littlejohn and Foss (2011) believe affect displays are innate and intrinsically coded. This means *how* one determines if it is appropriate to display an emotion, and *what* specific emotion will be displayed, depends on personal experience. Age, gender, race, and geographic location can also contribute to how one manages his or her affect displays.

According to Ekman and Friesen (1969) there are some affect displays that are universally recognized such as happiness, surprise, fear, sadness, anger, disgust, and interest. The authors also note, “if observers can distinguish among these seven affective states when viewing the human face, then there must be some specifiable cues in a facial display which could be coded, (Ekman & Friesen, 1969, p. 66). Furthermore, the authors note that these affect displays can be recognized within one’s own culture, as well as distinguished across various cultures (Ekman & Friesen, 1969). With emoji the same may be culturally understood, and learned, until as a culture, or as a generation, Millennials understand the correspondence of emoji to facial expression and emotional expression.

Perhaps one of the most powerful things about emoji as a nonverbal is that they can be blended or customized to suit the needs of the user interaction. MMC users use more than one emoji to more carefully, more articulately, and more authentically illustrate a facial expression. Sternbergh (2014) believes “elasticity of meaning is a large part of the appeal and, perhaps, the genius of emoji” (n.p.). Emoji are simultaneously comprehensive and specific—covering a vast

of possible emotions but the most finely tuned, particular unique, complex situation. Yet elasticity of meaning, or fluidity does not detract from universality, but rather enables it. One thing that has contributed to the idea of emoji being fluid, elastic, and evolved are the “strings,” or personal connections and meanings attributed to emoji when used in a new situation. This is how one emoji can come to mean a variety of things to different people, in different contexts, under different circumstances. President of Oxford Dictionaries, who shares responsibility for the “Face with Tears of Joy” emoji being named “Word of the Year,” Caspar Grathwohl says about emoji:

...they are subtle and rich...They are so flexible. They can mean different things to different people...I do think that the strings people send to me are becoming longer and longer. They are starting to tell stories in and of themselves. The fact that we are using emoji in combination to express more complex ideas and experiences is one of the most fun and playful parts of the whole script (quoted in Sternbergh, 2014, n.p).

Tagg (2012) also notes that digital communication allows for its participants to co-construct playful discussion, and Mahatanankoon’s (2007) are in agreement “individuals who engage in text messaging have higher levels of innovativeness, playfulness,” (p. 24).

Emoji can have different meanings based on the circumstances, the nature of the relationship, and the combination of emojis used. According to Read (2016) emojis have become a way to convey the tone and non-verbal context behind our texts, IMs or tweets and work amazingly alongside snippets of text as a way to give more context to a message (n.p.). Emoji can serve different roles across relationship contexts as well—every emoji has a given definition from Unicode, yet cultural definitions of, and uses for, emoji differ throughout mini-cultures:

friends, relationships, work circles. The affect display is Ekman and Friesen's (1969) technical term for facial expressions. Notably, Coccozza (2015) notes that emojis are more than faces, they are actual facial expressions, (n.p.)

Within FtF interactions, Ekman and Friesen (1969) note the affect display is commonly emitted without the intent of transmitting a message; however it is the opposite in MMC. Due to the nature of emojis being an addition to the normal mobile keyboard, inserting an emoji versus an emoticon (which comes from typing on the same traditional keyboard) is demonstrative of an intentional act by the user, and therefore not only is emoji use intentional, but also deliberate. What makes the affect display relevant to digital nonverbals, is the assumption that certain facial displays create universal understanding of meaning, and therefore the inclusion of certain facial emojis serve as universal representations of a particular emotion. The Unicode Consortium update to the emoji keyboard in summer of 2015 added even more potential for universal representation by including new skin tones for emojis representative of the FitzPatrick scale, which is a "recognized standard for dermatology." (Sternbergh, 2014, n.p.).

At any given instant, the face typically conveys affect blends, or multiple emotions. Instead of user's limited themselves to one emoji, one face to express emotion, MMC users combine emoji to create a more specific and authentic facial expression. Affect blends may be provoked by current circumstances, they may be habitual, or they may be as a result of display rules (de-intensification, over-intensification, affectless or neutrality, and masking,) (adapted from Ekman & Friesen, 1969). With emoji, the possibilities for affect blends are infinite, the potential for creativity endless⁹.

Functions of digital vocalics.

⁹ See Appendix D, Table 6 for common user emoji "affect blend," meaning

One noteworthy aspect to be taken away from research surrounding CMC and IM is how mediated communication users interact despite available vocalic cues. According to Tagg (2012) “Online conversationalists compensate for a lack of paralinguistic cues, such as voice quality...by exploiting written forms through unconventional spelling...and wordplay (p. 483). Formerly referred to as “digital affiliation cues,” when present in CMC (Sherman, Michikyan, & Greenfield, 2013), occurrences of unconventional spellings, wordplays, or “txtspeak” may be better understood from a theoretical standpoint as *digital vocalics*.

Knapp and Hall (2002) define vocal behavior as “*how* something is said” and further explain that sound variations are a product of “pitch, duration, [and] loudness” (p. 64). When considering vocalic behaviors and digital nonverbals, devices used in MMC designed to replicate voice pitch, voice loudness, and duration of vocalization, demonstrate more than mere compensation by the user; these devices demonstrate critical thinking and creativity of MMC users. According to Welles, et al. (2014) “given sufficient time, individuals use a variety of linguistic cues, including...linguistic mimicry to compensate for the lack of nonverbal cues” (p. 2). Ultimately digital vocalics demonstrate linguistic iconicity and vocalic mimicry.

Although text messaging is essentially written or typed communication, it does not share the same features as traditional written communication and instead includes more characteristics of *spoken* communication. Vocalics encompasses “any vocal-auditory behavior except the spoken word” (Burgoon, et al. 1996, p. 58). In adapting Burgoon, et al.’s (1996) definition of vocalics for MMC transference, digital vocalics in MMC operate as “any vocal-auditory *mimicry* except the written word.” There are numerous ways to construct an auditory sound or a vocal sound into text messaging, which is why Trager’s (1969) classification system and levels of

paralanguage provides the roadmap for understanding the manifestation of digital vocalics manifest in MMC.

Having illustrated specific functions of the kinesic digital nonverbal emoji, the functions of digital vocalics need review. Although the first and second nonverbal functions do not apply to digital vocalics (*repeating* the verbal message and *substituting* the verbal message) typed laughter, excessive capitalization, excessive punctuation, and letter repetition embody the remaining five nonverbal functions. Trager's (1969) vocalizations include three subcategories: vocal characterizers, vocal qualifiers, and vocal segregates. The following subsections outline paralleled nonverbal functions and theoretical transference of Trager's (1969) subcategories to the digital vocalic behaviors of typed laughter, excessive capitalization, excessive punctuation, and letter repetition.

Typed laughter.

According to Trager's (1969) Classification System and speech analysis, laughter is an element of paralanguage and is specifically classified as a *vocal characterizer*. The digital vocalic behavior of typed laughter functions to complement or clarify the text message, to contradict the text message, to emphasize the text message, and to accent the text message. Ultimately each of these typed laughter functions regulate MMC allowing interactants assurance of shared interpretation and lessen the emotional ambiguity.

Letter Repetition

Repeated letters ("I have to work laaaatttee") primarily function to clarify the text message, to emphasize the text message, and to accent the text message. These functions demonstrate Trager's (1969) vocalizations of whining, groaning, and moaning, as well as the vocal qualifiers of intensity and pitch height. Ultimately the digital nonverbal device of letter

repetition allows for the unique voice of the MMC user to reincarnate in text messaging, which creates a more accurate representation and transference of an individual's communicative style.

Excessive capitalization and excessive punctuation

The functions of the excessive capitalization and excessive punctuation digital vocalic behaviors will be reviewed together due to the similarity of their functions and correspondence to Trager's (1969) paralinguistic vocalizations. Excessive capitalization and excessive punctuation permit users to complement or clarify the text message, to emphasize the text message, to accent the text message, and to regulate the text message. Based on Trager's (1969) analysis, excessive capitalization shares qualities of both vocal characterizers and vocal qualifiers.

Traditionally, words intentionally typed in all capitals are designed to simulate yelling, however vocal characterizers take numerous forms: crying, yelling, moaning, groaning, and whining, to name a few (Trager, 1969). Furthermore, excessive punctuation can also convey these same vocalizations, and when used in combination, the effect is amplified: "NO!!!!!" In addition to the digital nonverbal devices of excessive capitalization and excessive punctuation functioning as vocal characterizers, the two may also serve the MMC user as vocal qualifiers used to indicate intensity or pitch height. Capitalization implies intensity, "I HAVE TO WORK LATE," but when used concurrently with lowercase text, a representation of pitch height fluctuation occurs: "I have to WORK late," or "I have to work LATE," and even "I HAVE to work late." All three say the same thing, but they do not all mean the same thing to the text message receiver. Similarly, excessive punctuation enables the opportunity to diversify text message language with intensity and pitch: "I have to work late!!!!!" and "I have to work late?????" and "I have to work late?!?!?!?"

However research indicates, perhaps even more so than excessive capitalization, the changes in punctuation use throughout MMC demonstrates, not only the presence of digital nonverbals in text messaging, but also cultural change. Sternbergh's (2014) anecdote regarding this language shift works well to summarize the evolution of mediated-communication:

Consider the exclamation point. For much of its history, the exclamation point had a fairly simple usage: to straightforwardly and sincerely indicate excitement or, if included in a quotation, vehemence or volume. ("Get off my lawn!" as opposed to "Get off my lawn.")...More recently, with the advent of new forms such as tweets and text messaging, the exclamation point has reverted to something closer to its original meaning. In fact, it's more or less switched places with the period, so that "I'm excited to see you!" now conveys sincere excitement to see you, while "I'm excited to see you." seems, on a screen at least, to imply the opposite. (Sternbergh, 2014, n.p.)

Furthermore, Yagoda (2012) also notes this linguistic and cultural shift in punctuation use: "An exclamation point is minimally acceptable enthusiasm ('See you there!'). But a period just comes off as sarcastic ('Good job on the dishes.')." (n.p.). Yagoda (2012) also notes:

Habitual e-mailers, texters and posters convey quite precise nuances through punctuation, which is after all one of the *points* of punctuation. A friend's 12-year-old daughter once said that in her view, a single exclamation point is fine, as is three, but never two. My friend asked her where this rule came from and the girl said, "Nowhere. It's just something you learn." (n.p.)

These examples reiterate the cultural understanding at work within text messaging and MMC, and when combined, these devices infiltrate language and communication as a whole.

Functions of digital chronemics.

Having reviewed the functions of digital vocalics as outlined in Table 5, reviewing the various functions and their application to chronemics will be examined next. Not surprisingly, the ability of nonverbal functions to moderate or regulate text messaging applies to digital chronemics. However in addition to these, and perhaps less observed, is the functional abilities of chronemics to complement or clarify the text message and to contradict the text message. Two distinct characteristics of MMC include time stamps and the animated ellipses bubble for iPhone users. These devices represent chronemic cues in MMC.

Walther (2006) notes, “new and emerging technologies selectively reintroduce additional cues into communicative exchanges among people who do not meet FtF (p.). Walther (2006) also believes chronemic cues, while frequently overlooked, have always been available in mediated communications. In order to understand how digital chronemics complement, clarify, moderate, and regulate text messaging, one must understand the significance of synchronous communication and response time and duration in MMC.

MMC interactants use response time moderate and regulate communication. Response time includes both punctuality and silence. As Kalman and Rafaeli (2005) observed, “Response times vary considerably, and the chronemics of email are an important non-verbal cue which can convey meaning” (p.1). According to Rice (1990), email users focus on the time stamps placed on messages automatically, inferring from them when a message was sent and how much latency occurred before one of their own messages received a reply. Cramton (2001) notes “Response latencies are another familiar chronemic characteristic...Members make biased attributions for

response delays, assuming personal rather than situational causes for lags by distant team members” (p. 347). Therefore chronemic dynamics are potent forces in the experience of CMC users, and will likewise affect MMC.

Dissimilar to email, IM is a synchronous form of communication. Within synchronous styles of communication, response time, punctuality, and latency possess even stronger potency than asynchronous CMC. According to Nardi, Whittaker, and Bradner (2000) “In organizational settings where members use Instant Messenger (IM), a query that goes without a response is frequently attributed to one’s partner being busy” (n.p.). Interestingly, when using IM for social chatting, individuals left waiting for replies grow increasingly frustrated, if not hostile (Rintel & Pittam, 1997).

The nature of text messaging suggests a synchronous design, which oftentimes takes the place of FtF interactions. MMC users rely on clues such as timestamps and animated ellipses to form impressions about the conversation. According to Duncan-Howell (2009) “Conversation is divided into threads, with responses to different threads not following logically after one another. This does not inhibit the communicative experience but is merely a distinguishing characteristic of the medium (pp. 1014-15). Therefore the text message thread possesses regulatory and moderation chronemic functions because users are able to see when someone is working to respond to a text message (typing awareness indicator) and the amount of time passed between messages (Keyser, 2015, n.p.). Both of these chronemic cues demonstrate levels of conversation engagement or abandonment.

Within the boundaries of social and relationship contexts, interactants may have an expectation for social circumstances and relationship types that suggests priority or importance. Therefore a time stamp is a nonverbal indicator that conveys a message that either compliments

or contradicts an individual's expectation for an acceptable response time for a particular relationship type. For example, when text messaging a romantic partner one expects his or her companion to reply faster than text messaging a work colleague or family member.

The second way in which chronemic coding is transferable to MMC is through the element of duration. A long duration of time spent in CMC with a partner is inferred as a token of relational intimacy (Henderson & Gilding, 2004). Within the element of duration, the nonverbal functions of complementing, clarifying, contradicting, regulating, and moderating are also present. Similar to response time, this nonverbal function depends heavily on relationship type. Text messaging a friend throughout the day is an example of a long duration, whereas briefly engaging with an acquaintance has a shorter duration based on the lack of familiarity or relationship investment.

Digital chronemics and informal interactions.

It is also important to note how chronemic code functioning derive from cultural understanding. While Hall (1959) distinguishes between the cultural rules of formal time and informal time, Burgoon et al. (1996) separate interactions as being either task-oriented and formal, or social-oriented and informal. Regarding informal time Burgoon, et al. (1996) note:

Informal time is probably the most interesting and least understood time system of the three. Informal time elements are loosely defined, are not explicitly taught, and typically operate outside consciousness. They most often take the form of rules and expectations we learn from our culture, but it not clear when or if we all learn these rules. (p. 128-129)

Tagg (2012) finds that text messaging closely resembles an informal interaction. Therefore the cultural understanding and informality of the interaction produce MMC. Therefore MMC is an




informal interaction operating within informal time. MMC is a culturally learned informal interaction rooted in informal time.

Ultimately, the multitude of parallels between FtT nonverbal functions and digital nonverbal functions reinforces a theoretical framework for the digital devices at work in MMC.

Limitations and Future Research

There are several limitations to this study, as well as multiple opportunities for future research. First and foremost, it is acknowledged by the primary researcher that personal opinions and bias may have leaked into the research. Even the topic selection demonstrates personal opinion regarding emoji and text-messaging behavior's pertinence to traditional communication theory and scholarship. In order to eliminate infiltrations of personal opinion and bias, multiple revisions and edits have been made, in addition to implementing the council of the thesis committee. It is recognized by the primary investigator that bias could remain, but objectivity and neutrality was the goal, and the intent was to raise awareness and not publish opinion.

Due to the myriad of operating systems being used by today's Millennial college student, it is possible the differing design styles of emoji may have affected this research. As was indicated in the results, the primary operating device used was the iPhone (80% of participants.) It is plausible that participants with iPhones use emoji more frequently and willingly because iOS is the operating system that first circulated emoji. Ultimately this creates an opportunity for further research to explore how emoji is used in comparison with those having iPhones.

Furthermore, while Unicode Consortium ensures technical transference of emoji code, specific cultural meaning and implications of each emoji may not transfer. For example, Apple, Android, etc.—has its own rendering of each emoji, including poo. According to Sternbergh (2014), “Android’s pile of poo is surrounded by flies and wavy lines that suggest a poo-like stinkiness,  , whereas Apple’s pile of poo has wide eyes and is smiling:  . Twitter’s pile of poo also has eyes but looks kind of surprised,  , perhaps because it’s only just realized that it’s a sentient pile of poo with eyes” (n.p.). Therefore emoji content may vary based on the manner in which the operating system displays the emoji or illustrates the code.

Regarding MMC and text messaging behaviors, it is important to note the user is often influenced and motivated by “the real world” while conversing in the virtual world (Duncan-Howell, 2009). Therefore when participants completed the survey, they could have been reflecting on specific actions of that day, and not necessarily comprehensive texting patterns or personal trends. Sometimes emoji use has no conversational or even relational relevance and is rather a spontaneous response to an event, situation, or occasion in the real world that a user wants to bring into the virtual world. Situations such as these demonstrate once again the versatility of emoji, as well as the complexity.

Furthermore, the nature of relationships discussed in this study included the most basic types of relationships and may have been vague for study participants. For instance, when asked questions regarding frequency of emoji use with family members, participants were instructed to consider “family members” to mean “parents or siblings.” However there are a variety of other familial relationships, and the results are unclear as to whether or not the scores demonstrated a tendency to use emoji predominantly for siblings (shared generation) or used when texting parents (cross generational usage.) In future research, it would be interesting to understand more about Millennial’s influence on the older generations adoption and usage of emoji. Furthermore, while there has been research addressing text messaging and its effect on romantic relationships (Schade, Sandberg, Bean, Busby, & Coyne, 2013), little is known about how text-messaging behaviors *change* based on relationship type. Do MMC users behave more conservatively when texting a parent, coworker, or boss? Are MMC users more flirtatious and generous with emoji use when texting a romantic interest or using a dating app, such as Tinder?

In addition, this study sought only the texting behavior patterns of Millennial aged participants when recent studies have shown that emoji are gaining popularity across many

generations and ages. For instance, woman with a mother in her seventies discussed how her mom recently sent a text relaying regret, followed by a crying-face emoji. The woman described this encounter as “possibly the most straightforwardly emotional sentiment [my] mother had ever expressed” (Sternbergh, 2014, n.p.). Furthermore Sternbergh (2014) also notes, “emoji have also proved to be popular with the least techno-literate and ironic among us, i.e., our parents. Many people I spoke to relayed that their moms were the most enthusiastic adopters of emoji they knew. One woman said that her near-daily text-message-based interaction with her mother consists almost entirely of strings of emoji hearts” (n.p.). Therefore there are immense opportunities to study the conversational habits and tendencies of emoji users of all ages, and perhaps a comparison of understanding and frequency of use across generations would be a way to understand a holistic impact of emoji on current society.

This study examined nonverbal codes as per the function in MMC, such as replacing, moderating, accenting, etc. Yet seminal nonverbal theorist J. Burgoon (1996), features a variety of other social functions of nonverbal codes, such as structuring interaction, creating and managing identities, forming and managing impressions, communicating emotions, defining and managing relationships, regulating conversations, influencing others, and deceiving others. While this study touched on communication emotions, there is much more to be discovered in how digital nonverbals may be used for deception, influence, conversation management, and relationship management.

A vast amount of nonverbal theory research has been devoted to understanding nonverbals relation to deception. Therefore there are display rules that everyone socially learns throughout life and these have the potential to translate through emoji as well. Ekman and Friesen (1969) note four display rules: to de-intensify, to over-intensification, to appear affectless

or neutral, and masking. It would be interesting to understand if emoji use, type of emoji, number of emoji, combination of emoji are used in either deception or affect display rules.

It is also important to note that the questions within this study pertaining to chronemics, while helpful, are also somewhat rudimentary. While most participants noted responding to text messages within 5 to 10 minutes, there are situations when text messaging is prevented, and situations when text messaging is more easily accessible. Therefore it would be interesting to know when preventable situations or unlikely situations are compromised to send a text (such as texting in classes where the teacher will take away a phone,) and how quickly one responds when nothing else is happening (such as lying in bed at night.) In addition, chronemics plays a role in the type of conversation and level of urgency initiated. If for instance a parent sent a text which was clearly a simple question, requesting an immediate response, “When will you be home for dinner so I can order the pizza?” perhaps a user would take the time to respond immediately based on the need of the sender, whereas if a mother texted, “How is your day,” there wouldn’t be as much urgency in the nature of the message. Therefore both relationship and real world context can affect chronemic responses.

The language of MMC transfers throughout applications and device as a whole. One instance of this can be noted from Instagram, who reported in March 2015 that nearly half of the texts on Instagram contained emojis (Novak, et al., 2015, pp. 1-2). Therefore there is potential for studies to examine the uses of digital nonverbals across different mobile applications. Are there certain applications that lend themselves to more emoji use? Do people “LOL” more on Facebook or on Twitter?

While most research concerning nonverbal coding within the digital medium involves computer-based interactions such as email and texting, there are a few noteworthy studies

discussing nonverbal coding and the mobile text messaging conversation. Studies regarding CMC, email, and instant messaging, as well as this paper regarding MMC, the areas of nonverbal coding have been limited to kinesics (bodily, facial, and eye behavior through emoticons), vocalics (typed laughter punctuation, letter repetition, excessive capitalization), and chronemics (pauses or periods of silence.) The nonverbal codes of physical appearance, haptics (touch), proxemics (distance) and artifacts have not been addressed. Future research examining nonverbal coding theory, as well as further investigation within the nature of mobile text-messaging conversations as a whole, could produce a richer and deeper understanding of how nonverbal coding theory has evolved and adapted to fit the technological communication channels dominating modern culture today.

These are just a few areas of limitations and opportunities for future research that this study has exposed. There are still many other limitations and possible areas of future research not outlined here. As Walther (2006) notes regarding nonverbal behaviors and digital communication, "...as new technologies develop... the need for conceptual and empirical specificity about nonverbal cues, their functions, and their re-representations will become even more consequential...In future, more specific consideration of nonverbal cues, those missing and those that are replaceable, will be critical to the development of more sophisticated theories and better interfaces" (pp. 473, 474).

Ultimately this study serves as an introduction, a phase one, to the concept of nonverbal cues manifesting as digital nonverbals in mobile-mediated communication. MMC is not limited to mobile phones, for tablets as well can foster MMC, and MMC is not constrained to only texting applications. As a second phase of this research, the primary investigator plans to explore how digital nonverbals manifest across applications, such as Facebook, Twitter, Instagram, and

Snapchat. Are certain emojis better suited for these applications? Are some digital nonverbals used more prominently in Twitter as opposed to Facebook? Furthermore, there is much to be explored regarding the use of digital nonverbals, specifically emoji, in the media. Therefore in phase three of this research the primary investigator plans to explore emoji culture including the use of emoji in branded advertising such as Dominos, McDonalds, and Always,; as well as the use of emoji in cinema advertising (Marvel's *Deadpool* billboard.) Adoption of emoji and digital nonverbals as a whole demonstrates that these devices are not reserved for just MMC. Instead, MMC is impacting larger culture as whole.

Conclusion

This study examined the texting behaviors of Millennials, hoping to better understand how nonverbal coding elements function within text messaging conversations. Specifically, this study worked to prove how kinesic behaviors (facial expressions, eye behavior, and body movement), vocalic behaviors (tone, pitch, loudness), and chronemic behaviors (punctuality, waiting time, duration, urgency). MMC is the dominant communication medium due to the ability of its users to integrate nonverbal cues to aid in successful communication. Therefore this study sought to unravel the deeper functioning's of MMC users, and attempted to standardize digital nonverbals in order to better understand the practices of MMC users.

Overall the area of nonverbal coding is an extremely involved communication theory, with many intricacies and complexities that are still being discussed today by modern theorists. The seven classifications of nonverbal coding, including kinesics, vocalics, physical appearance, haptics, proxemics, chronemics, and artifacts encompass a broad range of nonverbal communication behavior but each element can be further specified. Because of the ways in which nonverbal coding can be simultaneous and automatic, voluntary or involuntary, intentional or unintentional, nonverbal codes are difficult to detect and understand within face-to-face communication and equally difficult, if not more difficult, to detect and understand within computer-mediated communication. However even though there is difficulty surrounding the translation of a primarily FtF theory to a CMC theory, it is not impossible and several scholars have already undertaken this challenge.

Current findings suggest mediated communication encourages users to be creative despite the relative lack of nonverbal cues. Walther (2006) stated "CMC is as capable as FtF communication of sharing impressions and managing relational communication, based on the

substitutability of verbal and nonverbal cues” (Walther, 2006, p. 478). To take this statement one step further and propose an overall argument for this research the primary researcher offers:

“MMC *is as capable* as FtF communication of conversation management and managing relationship communication, based on the substitutability of verbal and nonverbal cues such as kinesics, vocalics, and chronemics.” When a Millennial drafts a text message, they engage in a complex cognitive process, recalling resources such as relationship type, interaction history and patterns, as well as recipient personality. Creativity and critical thinking enhance text message creation, so much so that MMC users draft perfectly suited messages and engage in advanced conversation management.

As for emoji, it is quite likely these yellow, quirky, and playful characters are here to stay. According to Newlands, Anderson, and Mullin (2003), “It has been suggested that users of text-based electronic communication may become more precise in their language use to more clearly communicate feelings and emotions...” (p. 347). Furthermore, according to Sternbergh (2014) emoji “bridge the difficult gap between what we feel and what we intend and what we say and what we text” (n.p.). One cannot be sure, but perhaps just as current historians gaze upon the hieroglyphics and language development of the Egyptians with reverence, one day a future society may have the same expression of awe when reading *Emoji Dick*, Herman Melville’s classical literature piece *Moby Dick*, that has recently been translated entirely into emoji.

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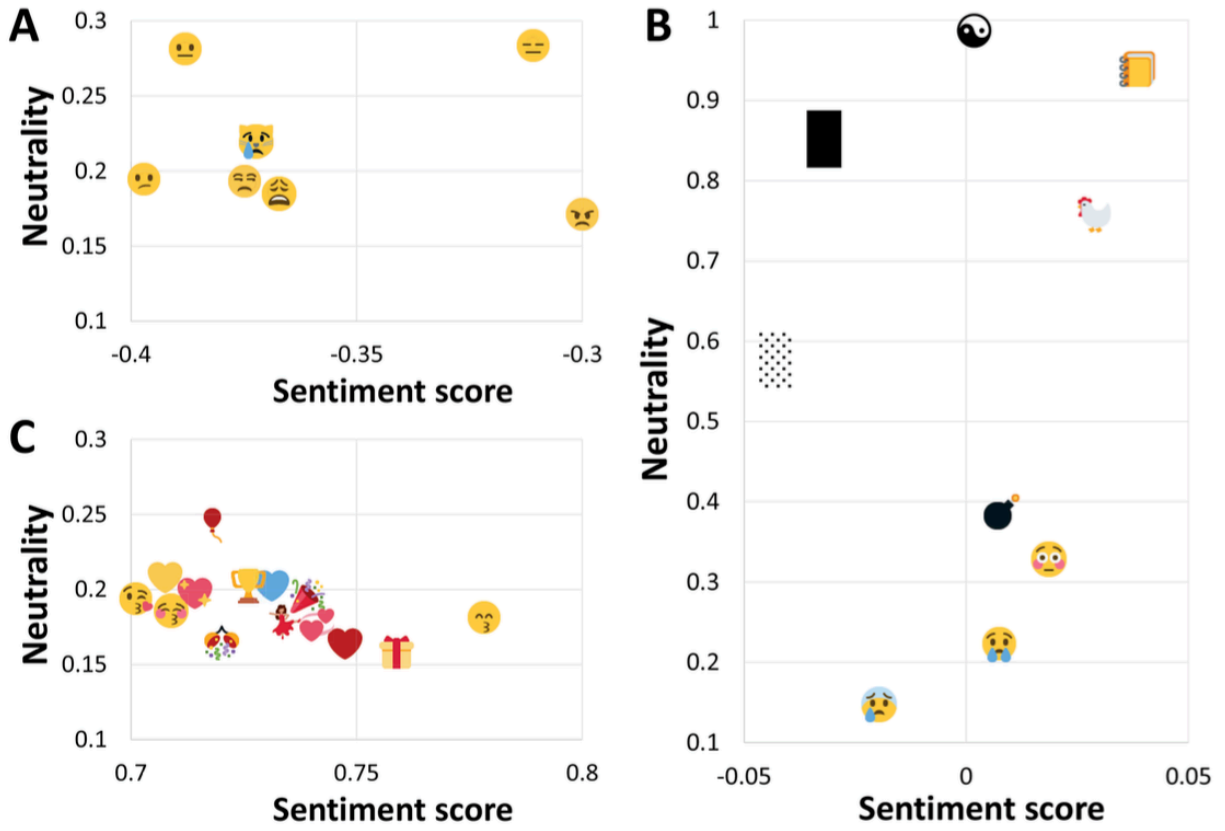
Appendix A

Table 1. Trager’s (1969) Classification System: Second Level of Analysis – Speech

| PARALANGUAGE | | | | | |
|--|--------------------|--|-------------------------|-------------------------|------------------------|
| Voice Qualities (i.e. vocal behavior) | | Vocalizations (i.e. vocal sounds) | | | |
| <i>Quality</i> | <i>Variation</i> | <i>Vocal characterizers</i> | <i>Vocal qualifiers</i> | <i>Vocal segregates</i> | <i>Vocalic emblems</i> |
| Pitch range | Spread to Narrowed | Laughing, crying, yelling, whispering, moaning, groaning, whining, breaking, belching, and yawning | intensity | Pauses | “Uh-Uh” (“No”) |
| Articulation control | Precise to slurred | | | Clicks | “Uh-huh” (“Yes”) |
| Resonance | Resonant to thin | | Pitch height | Snorts | “uh” (hesitation) |
| Tempo | Fast to slow | | | | “sh” (quiet) |

Appendix B

Figure 10. Emoji sentiment map Novak et al. (2015).



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Appendix C

Complete list of text message behavior survey questions and results.

Initial Report

Last Modified: 03/04/2016

1. To aid in the analysis of this data, please select the type of SmartPhone operating system you use:

| # | Answer | Response | % |
|---|--------------|----------|------|
| 1 | iOS (iPhone) | 347 | 79% |
| 2 | Android | 81 | 18% |
| 3 | Windows | 3 | 1% |
| 4 | Blackberry | 1 | 0% |
| 6 | Other | 7 | 2% |
| | Total | 439 | 100% |

2. Please select your gender

| # | Answer | Response | % |
|---|--------|----------|------|
| 1 | Male | 209 | 48% |
| 2 | Female | 230 | 52% |
| | Total | 439 | 100% |

3. Do you use typed emoticons in text messaging? (NOTE: Typed emoticons are different than Emojis. Typed emoticons include :-) or :-(or :- / and :) or :(or :P etc.)

| # | Answer | Response | % |
|---|--------|----------|------|
| 1 | Yes | 284 | 65% |
| 2 | No | 155 | 35% |
| | Total | 439 | 100% |

4. Do you use emojis in text messaging? (please see the graphic above if you are unsure what emojis are.)

| # | Answer | Response | % |
|---|--------|----------|------|
| 1 | Yes | 401 | 91% |
| 2 | No | 38 | 9% |
| | Total | 439 | 100% |

5. Do you use both typed emoticons and emojis in text messaging?

| # | Answer | Response | % |
|---|---|----------|------|
| 1 | Yes, I use both typed emoticons and emojis in text messaging. | 258 | 64% |
| 2 | No, I only use typed emoticons in text messaging. | 3 | 1% |
| 3 | No, I only use emojis in text messaging. | 137 | 34% |
| 4 | Not sure. | 3 | 1% |
| | Total | 401 | 100% |

6. How often do you use emojis while text messaging?

| # | Answer | Response | % |
|---|--|----------|------|
| 1 | Very Frequently (in almost every text) | 63 | 16% |
| 2 | Frequently (in most texts) | 194 | 48% |
| 3 | Sometimes (in a couple of texts) | 118 | 29% |
| 4 | Rarely (only a few texts) | 25 | 6% |
| 5 | Never | 1 | 0% |
| | Total | 401 | 100% |

7. I use emojis while text messaging to convey my emotions or depict my emotional state.

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 111 | 28% |
| 2 | Frequently | 163 | 41% |
| 3 | Sometimes | 107 | 27% |
| 4 | Rarely | 18 | 4% |
| 5 | Never | 2 | 0% |
| | Total | 401 | 100% |

8. I use emojis when texting my family. (i.e. parents or siblings)

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 59 | 15% |
| 2 | Frequently | 117 | 29% |
| 3 | Sometimes | 134 | 33% |
| 4 | Rarely | 70 | 17% |
| 5 | Never | 21 | 5% |
| | Total | 401 | 100% |

9. I use emojis when texting my friends.

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 144 | 36% |
| 2 | Frequently | 166 | 41% |
| 3 | Sometimes | 67 | 17% |
| 4 | Rarely | 22 | 5% |
| 5 | Never | 2 | 0% |
| | Total | 401 | 100% |

10. I use emojis when texting a romantic partner / a romantic interest (i.e. boyfriend/girlfriend or spouse.)

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 152 | 38% |
| 2 | Frequently | 128 | 32% |
| 3 | Sometimes | 63 | 16% |
| 4 | Rarely | 25 | 6% |
| 5 | Never | 30 | 8% |
| | Total | 398 | 100% |

11. I use emojis when texting an acquaintance.

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 13 | 3% |
| 2 | Frequently | 55 | 14% |
| 3 | Sometimes | 146 | 36% |
| 4 | Rarely | 134 | 33% |
| 5 | Never | 53 | 13% |
| | Total | 401 | 100% |

12. I use emojis only if the other person uses them first.

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 37 | 9% |
| 2 | Maybe | | 140 | 35% |
| 3 | No | | 204 | 51% |
| 4 | Not sure | | 20 | 5% |
| | Total | | 401 | 100% |

13. Do you use emojis literally, figuratively, or both?

| # | Answer | | Response | % |
|---|---------------------------------|--|----------|-----|
| 1 | Literally | | 26 | 6% |
| 2 | Figuratively | | 19 | 5% |
| 3 | Both literally and figuratively | | 350 | 87% |
| 4 | Not sure | | 14 | 3% |

14. Do you feel better represented when you use emojis in text messages?

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 310 | 77% |
| 2 | No | | 46 | 11% |
| 3 | Not sure | | 45 | 11% |
| | Total | | 401 | 100% |

15. Do you understand text messages better when emojis are included/used?

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 311 | 78% |
| 2 | No | | 58 | 14% |
| 3 | Not sure | | 32 | 8% |
| | Total | | 401 | 100% |

16. Do you use excessive capitalization in text messaging? (i.e. "excessive capitalization" here means having several letters or words capitalized without grammatical need such as YES, ARE YOU KIDDING ME, NO WAY, etc.)

| # | Answer | | Response | % |
|---|--------|--|----------|------|
| 1 | Yes | | 222 | 51% |
| 2 | No | | 217 | 49% |
| | Total | | 439 | 100% |

17. How often do you use excessive capitalization in text messaging?

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 12 | 5% |
| 2 | Frequently | 51 | 23% |
| 3 | Sometimes | 123 | 55% |
| 4 | Rarely | 36 | 16% |
| 5 | Never | 0 | 0% |
| | Total | 222 | 100% |

18. I use excessive capitalization in text messaging to convey my emotions or depict my emotional state.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 110 | 50% |
| 2 | Probably true | 89 | 40% |
| 3 | Neither true nor false | 15 | 7% |
| 4 | Probably false | 8 | 4% |
| 5 | Definitely false | 0 | 0% |
| | Total | 222 | 100% |

19. I use excessive capitalization in text messaging to emphasize a word or phrase.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 127 | 57% |
| 2 | Probably true | 82 | 37% |
| 3 | Neither true nor false | 9 | 4% |
| 4 | Probably false | 3 | 1% |
| 5 | Definitely false | 0 | 0% |
| | Total | 221 | 100% |

20. I use excessive capitalization when texting my family. (i.e. parents or siblings)

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 30 | 14% |
| 2 | Probably true | 65 | 29% |
| 3 | Neither true nor false | 47 | 21% |
| 4 | Probably false | 60 | 27% |
| 5 | Definitely false | 20 | 9% |
| | Total | 222 | 100% |

21. I use excessive capitalization when texting my friends.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 110 | 50% |
| 2 | Probably true | 87 | 39% |
| 3 | Neither true nor false | 13 | 6% |
| 4 | Probably false | 12 | 5% |
| 5 | Definitely false | 0 | 0% |
| | Total | 222 | 100% |

22. I use excessive capitalization when texting a romantic partner / interest (i.e. boyfriend, girlfriend, spouse, etc.).

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 55 | 25% |
| 2 | Probably true | 71 | 32% |
| 3 | Neither true nor false | 47 | 21% |
| 4 | Probably false | 25 | 11% |
| 5 | Definitely false | 23 | 10% |
| | Total | 221 | 100% |

23. I use excessive capitalization when texting an acquaintance.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 7 | 3% |
| 2 | Probably true | 31 | 14% |
| 3 | Neither true nor false | 40 | 18% |
| 4 | Probably false | 78 | 35% |
| 5 | Definitely false | 66 | 30% |
| | Total | 222 | 100% |

24. I use excessive capitalization when texting only if the other person uses it first.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 4 | 2% |
| 2 | Probably true | 30 | 14% |
| 3 | Neither true nor false | 43 | 19% |
| 4 | Probably false | 74 | 33% |
| 5 | Definitely false | 70 | 32% |
| | Total | 221 | 100% |

25. I use excessive capitalization when text messaging to imply shouting or yelling.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 114 | 51% |
| 2 | Probably true | | 67 | 30% |
| 3 | Neither true nor false | | 18 | 8% |
| 4 | Probably false | | 14 | 6% |
| 5 | Definitely false | | 9 | 4% |
| | Total | | 222 | 100% |

26. I use excessive capitalization when text messaging to imply excitement or surprise.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 142 | 64% |
| 2 | Probably true | | 66 | 30% |
| 3 | Neither true nor false | | 5 | 2% |
| 4 | Probably false | | 7 | 3% |
| 5 | Definitely false | | 2 | 1% |
| | Total | | 222 | 100% |

27. Do you feel better represented when you use excessive capitalization in text messages?

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 163 | 73% |
| 2 | No | | 26 | 12% |
| 3 | Not sure | | 33 | 15% |
| | Total | | 222 | 100% |

28. Do you understand text messages better when excessive capitalization is used?

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 147 | 66% |
| 2 | No | | 41 | 18% |
| 3 | Not sure | | 34 | 15% |
| | Total | | 222 | 100% |

29. Do you use typed laughter in text messaging? (i.e. typed laughter here means “LOL,” or “haha,” or “ha ha,” etc.)

| # | Answer | | Response | % |
|---|--------|--|----------|------|
| 1 | Yes | | 423 | 96% |
| 2 | No | | 16 | 4% |
| | Total | | 439 | 100% |

30. How often do you use typed laughter in text messaging?

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 205 | 48% |
| 2 | Frequently | 148 | 35% |
| 3 | Sometimes | 59 | 14% |
| 4 | Rarely | 10 | 2% |
| 5 | Never | 1 | 0% |
| | Total | 423 | 100% |

31. I use typed laughter in text messaging to convey my emotions or depict my emotional state.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 211 | 50% |
| 2 | Probably true | 160 | 38% |
| 3 | Neither true nor false | 39 | 9% |
| 4 | Probably false | 8 | 2% |
| 5 | Definitely false | 5 | 1% |
| | Total | 423 | 100% |

32. I use typed laughter when texting my family. (i.e. parents or siblings)

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 195 | 46% |
| 2 | Probably true | 164 | 39% |
| 3 | Neither true nor false | 23 | 5% |
| 4 | Probably false | 29 | 7% |
| 5 | Definitely false | 11 | 3% |
| | Total | 422 | 100% |

33. I use typed laughter when texting my friends.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 334 | 79% |
| 2 | Probably true | 76 | 18% |
| 3 | Neither true nor false | 8 | 2% |
| 4 | Probably false | 2 | 0% |
| 5 | Definitely false | 3 | 1% |
| | Total | 423 | 100% |

34. I use typed laughter when texting a romantic partner / interest (i.e. boyfriend, girlfriend, spouse, etc.).

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 265 | 63% |
| 2 | Probably true | | 99 | 23% |
| 3 | Neither true nor false | | 41 | 10% |
| 4 | Probably false | | 7 | 2% |
| 5 | Definitely false | | 10 | 2% |
| | Total | | 422 | 100% |

35. I use typed laughter when texting an acquaintance.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 115 | 27% |
| 2 | Probably true | | 175 | 41% |
| 3 | Neither true nor false | | 69 | 16% |
| 4 | Probably false | | 49 | 12% |
| 5 | Definitely false | | 15 | 4% |
| | Total | | 423 | 100% |

36. I use typed laughter when texting only if the other person uses it first.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 16 | 4% |
| 2 | Probably true | | 38 | 9% |
| 3 | Neither true nor false | | 79 | 19% |
| 4 | Probably false | | 119 | 28% |
| 5 | Definitely false | | 171 | 40% |
| | Total | | 423 | 100% |

37. Do you feel better represented when you use typed laughter in text messages?

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 320 | 76% |
| 2 | No | | 52 | 12% |
| 3 | Not Sure | | 51 | 12% |
| | Total | | 423 | 100% |

38. Do you understand text messages better when typed laughter is used?

| # | Answer | | Response | % |
|---|----------|--|----------|------|
| 1 | Yes | | 302 | 71% |
| 2 | No | | 70 | 17% |
| 3 | Not Sure | | 51 | 12% |
| | Total | | 423 | 100% |

39. Do you use repeated letters in text messaging? (ex. "Hiiiiii," or "Nooooo," or "Yessss" or "No wayyyyy," etc.)

| # | Answer | Response | % |
|---|--------|----------|------|
| 1 | Yes | 266 | 61% |
| 2 | No | 171 | 39% |
| | Total | 437 | 100% |

40. How often do you use repeated letters in text messaging? (ex. "Hiiiiii," or "Nooooo," or "Yessss" or "No wayyyyy," etc.)

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 49 | 18% |
| 2 | Frequently | 67 | 25% |
| 3 | Sometimes | 117 | 44% |
| 4 | Rarely | 34 | 13% |
| 5 | Never | 1 | 0% |
| | Total | 268 | 100% |

41. I use repeated letters in text messaging to convey my emotions or depict my emotional state.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 85 | 32% |
| 2 | Probably true | 105 | 39% |
| 3 | Neither true nor false | 47 | 18% |
| 4 | Probably false | 24 | 9% |
| 5 | Definitely false | 7 | 3% |
| | Total | 268 | 100% |

42. I use repeated letters when texting my family. (i.e. parents or siblings)

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 48 | 18% |
| 2 | Probably true | 84 | 31% |
| 3 | Neither true nor false | 43 | 16% |
| 4 | Probably false | 70 | 26% |
| 5 | Definitely false | 22 | 8% |
| | Total | 267 | 100% |

43. I use repeated letters when texting my friends.

| # | Answer | Response | % |
|---|---------------|----------|------|
| 1 | Almost Always | 61 | 23% |
| 2 | Usually | 73 | 27% |
| 3 | Occasionally | 119 | 44% |
| 4 | Usually not | 11 | 4% |
| 5 | Almost never | 4 | 1% |
| | Total | 268 | 100% |

44. I use repeated letters when texting a romantic partner / interest (i.e. boyfriend, girlfriend, spouse, etc.).

| # | Answer | Response | % |
|---|---------------|----------|------|
| 1 | Almost Always | 50 | 19% |
| 2 | Usually | 60 | 23% |
| 3 | Occasionally | 111 | 42% |
| 4 | Usually not | 25 | 9% |
| 5 | Almost never | 20 | 8% |
| | Total | 266 | 100% |

45. I use repeated letters when texting an acquaintance.

| # | Answer | Response | % |
|---|---------------|----------|------|
| 1 | Almost Always | 15 | 6% |
| 2 | Usually | 20 | 7% |
| 3 | Occasionally | 75 | 28% |
| 4 | Usually not | 87 | 32% |
| 5 | Almost never | 71 | 26% |
| | Total | 268 | 100% |

46. I use repeated letters when texting only if the other person uses it first.

| # | Answer | Response | % |
|---|---------------|----------|------|
| 1 | Almost Always | 9 | 3% |
| 2 | Usually | 20 | 7% |
| 3 | Occasionally | 65 | 24% |
| 4 | Usually not | 99 | 37% |
| 5 | Almost never | 74 | 28% |
| | Total | 267 | 100% |

47. I use repeated letters in text messaging when I want to emphasize a word or phrase.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 122 | 46% |
| 2 | Probably true | 102 | 38% |
| 3 | Neither true nor false | 26 | 10% |
| 4 | Probably false | 15 | 6% |
| 5 | Definitely false | 3 | 1% |
| | Total | 268 | 100% |

48. Do you use excessive punctuation in text messaging? (i.e. "excessive punctuation" here means using several punctuation devices at once, such as "!!!!!!!!!!!!" or "....." or "????????")

| # | Answer | Response | % |
|---|--------|----------|------|
| 1 | Yes | 232 | 53% |
| 2 | No | 205 | 47% |
| | Total | 437 | 100% |

49. How often do you use excessive punctuation in text messaging? (i.e. "excessive punctuation" here means using several punctuation devices at once, such as "!!!!!!!!!!!!" or "....." or "??????")

| # | Answer | Response | % |
|---|-----------------|----------|------|
| 1 | Very Frequently | 43 | 19% |
| 2 | Frequently | 77 | 33% |
| 3 | Sometimes | 96 | 41% |
| 4 | Rarely | 16 | 7% |
| 5 | Never | 0 | 0% |
| | Total | 232 | 100% |

50. I use excessive punctuation in text messaging to convey my emotions or depict my emotional state.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 100 | 43% |
| 2 | Probably true | 103 | 44% |
| 3 | Neither true nor false | 18 | 8% |
| 4 | Probably false | 11 | 5% |
| 5 | Definitely false | 1 | 0% |
| | Total | 233 | 100% |

51. I use excessive punctuation when texting my family. (i.e. parent or sibling)

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 61 | 26% |
| 2 | Probably true | 94 | 40% |
| 3 | Neither true nor false | 39 | 17% |
| 4 | Probably false | 27 | 12% |
| 5 | Definitely false | 12 | 5% |
| | Total | 233 | 100% |

52. I use excessive punctuation when texting my friends.

| # | Answer | Response | % |
|---|------------------------|----------|------|
| 1 | Definitely true | 125 | 54% |
| 2 | Probably true | 93 | 40% |
| 3 | Neither true nor false | 10 | 4% |
| 4 | Probably false | 5 | 2% |
| 5 | Definitely false | 0 | 0% |
| | Total | 233 | 100% |

53. I use excessive punctuation when texting my romantic partner / interest (i.e. boyfriend, girlfriend, or spouse)

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 75 | 32% |
| 2 | Probably true | | 95 | 41% |
| 3 | Neither true nor false | | 43 | 19% |
| 4 | Probably false | | 10 | 4% |
| 5 | Definitely false | | 8 | 3% |
| | Total | | 231 | 100% |

54. I use excessive punctuation when texting an acquaintance.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 19 | 8% |
| 2 | Probably true | | 46 | 20% |
| 3 | Neither true nor false | | 49 | 21% |
| 4 | Probably false | | 84 | 36% |
| 5 | Definitely false | | 33 | 14% |
| | Total | | 231 | 100% |

55. I use excessive punctuation when texting only if the other person uses it first.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 6 | 3% |
| 2 | Probably true | | 28 | 12% |
| 3 | Neither true nor false | | 51 | 22% |
| 4 | Probably false | | 74 | 32% |
| 5 | Definitely false | | 74 | 32% |
| | Total | | 233 | 100% |

56. I use excessive punctuation in text messaging to emphasize a word or phrase.

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 96 | 42% |
| 2 | Probably true | | 105 | 46% |
| 3 | Neither true nor false | | 16 | 7% |
| 4 | Probably false | | 11 | 5% |
| 5 | Definitely false | | 2 | 1% |
| | Total | | 230 | 100% |

57. I use excessive punctuation in text messaging to imply shouting or yelling,

| # | Answer | | Response | % |
|---|------------------------|--|----------|------|
| 1 | Definitely true | | 69 | 30% |
| 2 | Probably true | | 74 | 32% |
| 3 | Neither true nor false | | 37 | 16% |
| 4 | Probably false | | 35 | 15% |
| 5 | Definitely false | | 18 | 8% |
| | Total | | 233 | 100% |

58. When a family member (parent or sibling) texts me I try to reply...

| # | Answer | | Response | % |
|---|--|--|----------|------|
| 1 | Immediately | | 160 | 37% |
| 2 | Within 5-10 minutes | | 138 | 32% |
| 3 | Within the hour | | 78 | 18% |
| 4 | Sometime that day | | 48 | 11% |
| 5 | Not sure / I don't really think about it | | 14 | 3% |
| | Total | | 438 | 100% |

59. When my romantic partner / a romantic interest texts me, I try to reply...

| # | Answer | | Response | % |
|---|--|--|----------|------|
| 1 | Immediately | | 210 | 48% |
| 2 | Within 5-10 minutes | | 134 | 31% |
| 3 | Within the hour | | 51 | 12% |
| 4 | Sometime that day | | 9 | 2% |
| 5 | Not sure / I don't really think about it | | 32 | 7% |
| | Total | | 436 | 100% |












60. When a good friend texts me, I try to reply...

| # | Answer | | Response | % |
|---|--|--|----------|------|
| 1 | Immediately | | 187 | 43% |
| 2 | Within 5-10 minutes | | 158 | 36% |
| 3 | Within the hour | | 63 | 14% |
| 4 | Sometime that day | | 22 | 5% |
| 5 | Not sure / I don't really think about it | | 8 | 2% |
| | Total | | 438 | 100% |

61. When an acquaintance texts me, I try to reply...

| # | Answer | | Response | % |
|---|--|--|----------|------|
| 1 | Immediately | | 76 | 17% |
| 2 | Within 5-10 minutes | | 139 | 32% |
| 3 | Within the hour | | 123 | 28% |
| 4 | Sometime that day | | 76 | 17% |
| 5 | Not sure / I don't really think about it | | 24 | 5% |
| | Total | | 438 | 100% |

Appendix D

| Table 6. Common user generated emoji, and emoji “affect blend,” meanings | | |
|---|---|---|
| <i>Proper Name</i> | <i>Emoji(s)</i> | <i>Understood meaning</i> |
| Nail Polish |  | “I’m not bothered” or “Haters gonna hate ³ ” or used to display an air of nonchalance |
| Man in Business Suit Levitating |  | “Man in Black” emoji ³ |
| Person with Folded Hands |  | “Prayer hands” emoji “A non-denominational alternative to ‘God willing’ ¹ ” |
| Fisted Hand Sign |  | “Power;” or “Strength to you, sister;” ⁴ or “bro fist,” or “fist bump” |
| Eggplant or Aubergine |  | “Popular phallic innuendo ¹ ” |
| Dancer |  | “Inherently sexy ³ ” or #birthdaybehavior, #ladiesnight, #grownandsexy ⁶ |
| Woman with Bunny Ears |  | “showgirls” emoji Tap dance emoji #sistasista #sistersforlife #bestiesforlife ⁶ |
| Grinning Face With Smiling Eyes and Pistol |  | “Stress ² ” |
| Flushed Face + Face with Tears of Joy |  | “I can’t believe I did that / she did that / he did that/ that happened... that’s hilarious” |
| White Up Pointing Backhand Index + Thumbs Up Sign |  | “Strategic finger-pointing to show you like what was typed on the line above ⁵ ” |
| |  | “SPOILER ALERT ⁵ ” |

1. Ilyas (2014); 2. Sternbergh (2014); 3. Coccozza (2015) 4. Wortham (2013); 5. Weber (2014) 6. Dimson (2012)

Appendix E

Figure 11. Translation of nonverbal codes to digital nonverbals

| Structural Properties | | FtF Nonverbal | Digital Nonverbal |
|-----------------------|--|---------------|--|
| | Analogic | | ✓ |
| | Iconicity | | ✓ |
| | Universality | | ✓ |
| | Simultaneity | | ✓ |
| | Automation | | X |
| | Spontaneity | | X |
| Functional Properties | | FtF Nonverbal | Digital Nonverbal |
| | Repeat | | ✓ |
| | Substitute | | ✓ |
| | Complement / Clarify | | ✓ |
| | Contradict | | ✓ |
| | Emphasize / Elaborate | | ✓ |
| | Accent / Moderate | | ✓ |
| Behavioral Properties | | FtF Nonverbal | Digital Nonverbal Translation |
| | | Kinesics | Ekman & Friesen 1969 → Emblems Affect Display |
| | | Vocalics | Trager, 1969 → Typed laughter Excessive capitalization Excessive punctuation Repeated Letters |
| Chronemics | Walther, 2006 → Time stamps Animated ellipses Punctuality Duration Urgency | | |

Appendix F

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**Carley Myers** <carleybethmyers@gmail.com>

Apr 29 (5 days ago) ☆



to Petra.Kralj.No., Igor.Mozetic ▾

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to me, Petra.Kralj.No. ▾

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Carley Myers <carleybethmyers@gmail.com>

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to Jennifer.Howell ▾

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Many thanks

Jennifer



Carley Durante <carleybethmyers@gmail.com>

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to Jennifer ▾

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Many thanks!

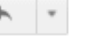
Sent from my iPhone

On Apr 29, 2016, at 7:53 PM, Jennifer Howell <jennifer.howell@curtin.edu.au> wrote:



Jennifer Howell

Apr 29 (5 days ago) ★



to me ▾

Hi Carley

That sounds great – many thanks for that extra bit of info

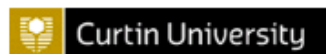
Cheers

Jennifer

Dr Jennifer Howell
PhD M.Ed(ICT) M.Ed(TESOL) B.Ed BA
Director of Student Experience and Community Engagement
Senior Lecturer | School of Education

Curtin University
Tel | +61 8 9266 2190
Fax | +61 8 9266 2547

Email | Jennifer.Howell@curtin.edu.au
Blog | <https://drjenniferhowell.wordpress.com>
Web | <http://curtin.edu.au>



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