

Text Messaging and Personality

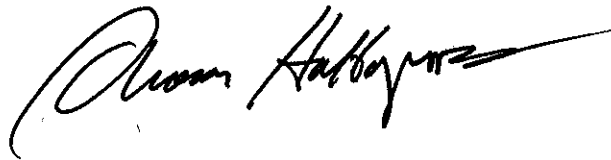
An Honors Thesis (HONRS 499)

by

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A handwritten signature in black ink, appearing to read "Thomas Holtgraves", with a long horizontal flourish extending to the right.

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Running head: TEXT MESSAGING AND PERSONALITY

Text Messaging and Personality

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*Abstract*

Text messaging is a relatively new phenomenon that needs empirically-based descriptions of its content and structure. Research on language use indicates that people are relatively consistent over time in their linguistic style, suggesting that this represents an important, stable aspect of personality. The current study examines language used in text message language as it relates to personality traits. Participants (N = 224) were asked to bring their cell phones for an experimental session who were asked to write down the exact content of the last 20 sent text messages, date and time, and the nature of their relationship with the message recipient.

Participants also completed a demographic questionnaire as well as various personality trait scales that were expected to be related to certain aspects of texting. Results indicate that gender differences may exist in relation to aggression and the use of sexual language. Females use more sexual words in text messages with lower scores of aggression. Males use more sexual words in text messages with higher scores of aggression. This may imply that nonaggressive females are more likely to feel comfortable expressing sexual language via text messaging that may not be expressed in other forms of communication.

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## Text Messaging and Personality

A vast majority of Americans are cell phone users. One of the most popular cell phone features is text messaging or SMS (Short Message System). The availability of such technology has led to the phenomenon of text messaging (Herring 2004). This feature has grown in popularity over the past few years for many reasons. Texting is inexpensive, unobtrusive, and convenient. One can communicate an idea directly without extra verbiage that is associated with greetings and other social cues that are generally used in more direct communication. Cell phone users tend to carry their devices on their person a majority of their waking hours which leads to the convenience of instant connection. The phenomenon has been examined by researchers in the form of general usage and linguistics without examining the individual who uses the technology. The current study attempts to analyze language as it is used in connection to individual personality traits.

The instant accessibility of SMS and its low cost makes it an obvious choice for instant communication (Herring 2004). The aforementioned research examines the differences in various forms of computer mediated communication or CMC. Text messaging is briefer in that a single text message is 160 characters. Constructing a direct message to a recipient that will consume less time and effort is more convenient than other forms of communication. Social discourse has changed and evolved through this relatively new phenomenon. Though many computer-mediated technologies such as instant messaging or email may share some similarities, nuances exist in the way users communicate through SMS. Cell phone users tend to carry their devices in close proximity in greater frequency compared to other communication devices; e.g. laptop or desktop computers.

Privacy and accessibility lend to the differences that bear implications about social exchange and behavior (Horstmanshof & Power 2005). Focus groups were assembled to discuss text messaging behavior for this study. The groups discussed their relationships to their devices and associations that were shared with other group participants in their interpretations texting communication. Language and communication patterns differed within the groups, but some similarities were found between groups. Individuals expressed their desire to be able to control the flow of communication. The flow of communication may reveal some personality differences that cannot be studied in a group setting. Group perceptions may guide discourse in ways that miss individual differences. Another reoccurring theme is their dependence on staying “in the loop” by carrying their devices at all times. An unspoken rule was discussed about the immediacy of response needed to stay connected to the individual. Wanting to stay connected through text messaging and desiring control of communication flow should be further researched on the individual level. Time intervals between text messages may also lend to individual perceptions of others in reaction to text messages.

Text messaging is not generally used as a primary means of communication for its users. Some research suggests that SMS users may often switch to other forms of communication such as online networking, talking on the phone, or meeting in person (Gritner & Eldridge 2003). Navigating a future social events or connecting previous communications by means of updating information between users is a popular use for text messages. Text messaging is a social catalyst that has become a normative form of filling in the time between initial plans and the execution a social event. The text message acts as an RSVP to confirm whether an event is to take place or not. A non-response or declining an offer may take place through this medium more often than face-to-face communication due to the disconnected nature of texting.

Since text messaging is a form of interpersonal communication it seems likely that it will be related to various aspects of personality. For example, Butt and Philips (2008) found that individuals scoring high on neuroticism and extroversion, and low on conscientiousness spent more time text messaging relative to other participants. Disagreeable individuals put less value in receiving phone calls than others. They also tend to spend more time using other functions on their phones such display and ringtones rather than communicating. Once again the focus in this research is the general functionality of the device.

Research on computer mediated communication shows that those with particular personality traits were more comfortable with expressing themselves via text messaging as opposed to face-to-face communication (McKenna et al. 2002). Those with high levels of social anxiety and shyness felt more comfortable connecting with others through computer mediated communication. Perhaps the anticipation of rejection that is associated with social anxiety is easier to deal with from a distance. Developing and maintaining social relationships may be sustained through text messaging more simply for those who are shy.

Other researchers have examined differences between “texters” and “talkers” (Ried & Ried 2004), that is, differences between those who prefer to text message or talk on their cell phones. The psychological effects of text messaging were also examined in the questionnaire that was used in the study. Results suggest that “texters” tend to be more socially anxious than “talkers”. Those who prefer text messaging express themselves more meaningfully through the medium due to the lack of social pressures experienced in face-to-face interactions. The aforementioned studies describe users by homogenizing the participants as they fit into broad categories.

Cell phones have created a new dimension in the ways that we are able to connect. Rich Ling has documented numerous interviews and other observations in a book about mobile communication and “Mobile Cohesion” (2008). This writer claims that family and friends are able to contact others much more readily due to growth in popularity of the new technology. Ling also claims that cell phones have created a tighter bond in relationships because individuals can feel as if someone is there at all times. Though individuals are not always available to answer phone calls, text messaging is more accessible. Texting may serve as a way to keep friends and family in close connection with each other, but it also comes with some negative aspects as well.

Some research suggests that SMS can sometimes produce negative effects. In one study of SMS, participants performed a task of sending a thread (multiple messages) of texts to many different recipients; some participants received messages of the entire conversation and some were not included, thus feeling ostracized (Smith & Williams 2004). Those who were not included felt as if they were being disconnected from the conversation. Other negative effects with SMS include verbal aggression, termed cyberbullying by Kowalski and Limber (2007). The brand of bully refers to using computer mediated communication to harass others. Another popular discussion in current media is “sexting”, a term that was coined to describe explicit sexual content in text messages.

Teenagers have been the main focus in “sexting” research. New laws have been developed that deal with sexual content sent to minors. Sexting content can include text, pictures, or video. Surveys from the PEW research center assessed the frequency and rationale behind sexting among teenagers ages 12 to 17 (Lenhart, Madden & Hitlin 2009). The majority of exchanges were between romantic partners. The other most popular uses of “sexts” were



exchanges between two people not currently in a romantic relationship, but one individual is hoping to become involved with the other. Legal cases vary in each case between the extremes of classifying the offense as child pornography or simply disorderly conduct.

### *Relationships and Gender Differences*

A study of text messaging behavior and relationships has shown that the majority of messages are sent to close friends and intimate or significant others (Horstmanhoff and Power 2005). Gender differences were found that revealed a male reluctance to follow the social “rules” of responding immediately to text messages from significant others whereas females tend to ascribe to the rule. The males in the study also described carrying their devices as being a social leash that confines them to the immediate response rule. These differences were only examined in small numbers of participants, but have implications that may be found in further research. Gender differences in language use have been examined extensively in linguistic research, but little has been done with SMS text messages.

One study examining gender differences in language use analyzed 14,000 text samples from over 70 studies (Newman et al. 2008). In this data females referred more to psychological and social processes, whereas males referred to objects and impersonal subjects. Prior to this study some researchers denied differences due to gender, but subjective judgments were used without a streamlined system. A computerized text analysis program known as the LIWC (Language Inquiry and Word Count) was used for all of the text samples (Tausczik & Pennebaker 2010). The LIWC has been used for multiple linguistics studies through a program that categorizes words from an internal dictionary developed specifically for Psychological research.

### *Sociolinguistics in Text Messages*

A sociolinguistic analysis of text messaging used students in a convenience sample; each participant provided five text messages that had been sent or received during the previous week (Thurlow 2003). Messages were categorized by level of intimacy and perceived intent. A limitation of broad categorization is that word meanings could be lost within the messages and may be lumped into a category with the most salient concept. The messages may fit into the humor category, but may be conveying a message that is more intimate between the individuals than is assumed when viewing the message. The researcher notes that text messages found with a sexual theme imply a level of intimacy and distance that is different than other forms of computer-mediated communication. The study implies that texters may be sending messages that would not be expressed face-to-face.

### *Linguistic Analysis*

New linguistic patterns have emerged such as an array of new abbreviations among other means to briefly convey messages. SMS research remains in the infant stages with much of the findings generally describing its functionality and basics of user language. Texting language must be mined for more descriptive data and linguistic categorization. The LIWC (Linguistic Inquiry and Word Count) is a computerized program used to analyze language within linguistic categories (Tausczik & Pennebaker 2010). The program was constructed from various text genres such as blogs, speeches, and essays. The LIWC was built originally from clinical patient's writings so that clinicians could assess progress in emotional valence. The LIWC dictionary is divided into two types of words, content and style. Content words convey the content of the communication, such as nouns, regular verbs, adjectives and adverbs. Style words, which include only about 500 words in our language, are words such as pronouns, prepositions, articles, conjunctions, auxiliary verbs, and other esoteric categories. The dictionaries used for

word mining were based on thousands of words from English dictionaries. Three judges were used to categorize the words with a 94% to 100% level of agreement. The LIWC has since been used in multiple studies examining over 100 million words. Developers of the program continue to update the software and dictionaries for users.

An advantage to using the LIWC is that it was constructed to find psychological interpretations of words and categorize them accordingly. Another advantage of using the program is that it counts words in multiple categories through percentage of use within a text sample. Most studies of linguistics prior to the LIWC used coding systems with judges who placed writings into broad categories based on phrasing instead of individual words or intended meaning of an entire passage. Linguistic analysis of individual words creates a better overall analysis without relying on the interpretations of different judges from study to study.

### *The Current Study*

The purpose of the present study was to examine whether certain personality traits (e.g., extroversion) are related to variation in the language used in text messages. In the current study all of the participants are 18 years or older, but the social stigma connected to sexting may still influence its perception in young adults. A pilot study (N = 46) was conducted first in order to examine which aspects of personality were most likely to be visible in texting. The results indicated some interesting gender differences. Specifically, females that scored low on the aggression personality measures used more sexual words than females scoring high on these measures. In contrast, male participants showed a positive correlation between sexual words and scores on the aggression, extraversion, and assertiveness measures. The pilot study only examined 13 males thus further research was needed in an attempt to replicate the findings.

### *Method*

### *Participants*

*Participants were* Ball State University students (N=224) with ages ranging from 18 to 41 years old who were enrolled in Psychology 100 during the 2009 fall semester. Participants were 53.6% female and 46.4% male. Participants identified their ethnicity as Caucasian (88.8%), African (4.9%), Asian (2.2%), Hispanic (3.6%), and Native American (.4%). Participants signed up online and received one hour of credit to partially fulfill a course requirement of four hours worth of research experience.

### *Measures*

*Five-factor model.* Participants completed a self-report of five personality traits: openness, agreeableness, neuroticism, extraversion, and conscientiousness (Goldberg 1992). This measure used a 7 point Likert-type scale, ranging from 1 being extremely inaccurate to 7 being extremely accurate, with 100 items. Each of the five factors consisted of 20 items that were single trait-descriptive adjectives. The five factors of the scale showed high internal consistency; extraversion (Cronbach's alpha = 0.89), agreeableness (Cronbach's alpha = 0.899), conscientiousness (Cronbach's alpha = 0.871), neuroticism (Cronbach's alpha = 0.809), and openness (Cronbach's alpha = 0.874).

*Self-monitoring.* The self-monitoring scale (Snyder 1974) is a self-report measure that reflects an aspect of social interactions through expressive behavior and self presentation. The 25 item measure uses a true or false response which is scored by a sum total of the true responses. The scale contains internal consistency (Cronbach's alpha = 0.633).

*Aggression.* The aggression questionnaire (Buss & Perry 1992) measures four factors of aggression which are physical aggression, verbal aggression, anger, and hostility. The 29 items are calculated by total scores of each factor and an overall aggression score. Each item

response uses a 7 point Likert-type scale ranging from 1 being extremely non-descriptive to 7 being extremely descriptive. The measure shows high internal consistency (Cronbach's alpha = 0.919).

*Assertion.* The Rathus Assertiveness Schedule (Rathus 1973) assesses assertion of individuals using a self-report style questionnaire. The 30-item schedule reflects a total score of assertion collapsing over all of the items. Each item response uses a 7 point Likert-type scale ranging from 1 being extremely non-descriptive to 7 being extremely descriptive. The scale shows high internal consistency (Cronbach's alpha = 0.84).

*Text messaging.* The text message questionnaire assesses language, behavior, and attitudes concerning single sent text messages. The first item is an open ended response in which the participant writes the text message. The date and time of each messages is reported thereafter. The following items describe information about the recipient of the message such as gender, type of relationship, length of relationship, age, familiarity, liking, and perceived closeness with the individual. The final items describe where the participant was while sending the message, whether others were present while sending the message, and a preferred means of communication.

#### *LIWC*

*Linguistic Inquiry and Word Count.* The Linguistic Inquiry and Word Count is a computerized word analysis program which processes text through probability (Tausczik & Pennebaker 2010). A count of words for each text message is used as the whole in which percentages are assessed for individual words in the text segment. The program breaks down text segments in 80 linguistic categories based on an internal dictionary. Categories include linguistic, social, cognitive, affective, perceptual, and biological processes as well as other

personal concerns. Words function to provide insight into an individual's thought processes, emotional states, intentions, and motivations (Tausczik & Pennebaker 2010). The major focus of the current study is under the sexual category which includes words such as horny, love, and fuck.

### *Procedures*

Participants reported to the lab which contained laptop computers used to complete the tasks. Each questionnaire was completed online via Survey Monkey ([www.surveymonkey.com](http://www.surveymonkey.com)). After reading the study explanation more detailed instructions were given by the principal investigator. The first task was to complete the Five-factor model, Self-monitoring, Aggression, and Assertiveness personality measures in randomized order. Upon completion participants were asked to take out their cell phones and access their 20 most recent sent text messages, report the messages verbatim, and answer the corresponding questions related to each message and its recipient. Upon completion the participants exited the website and thanked for their participation.

### *Results*

A multiple regression analysis was conducted to evaluate how well gender, aggression, and gender by aggression predicted the use of sexual words in text messages (see *Table 1*). The variables were all entered at once. The hypothesis predicted that the use of sexual words would higher by females who scored low on aggression measures compared to males who scored low on aggression. The results of analysis showed that gender significantly predicted the use of sexual words,  $B = .63, t(179) = 2.321; p < .05$ . Females used significantly more sexual language than males (see *Table 1*). Gender by aggression also significantly predicted the use of sexual words  $B = -.62, t = -1.994; p < .05$ . Males who scored higher in aggression used more sexual

words, whereas females who scored lower on aggression used more sexual words. The overall model was marginally significant,  $R^2 = .04$ ,  $F(3,179) = 2.464$ ,  $p = .064$ . There was a positive correlation in the use of sexual language as a function of aggression for males and a negative correlation for females (see Figure 1).

A two-factor analysis of variance showed a significant effect of gender by level of aggression in the use of sexual words,  $F(1,178) = 4.073$ ,  $p < .05$ . Females who scored low in aggression used the most sexual language overall. Males who scored low on aggression used the least amount of sexual language. The means and standard deviations are presented in Table 2.

### *Discussion*

The current study was a pioneering step into understanding the individual behind text messages. The results showed that there are some significant gender differences. Sexual words are used more frequently by females who score low on aggression whereas males use more sexual language when more aggressive. Overall, females use more sexual language than males. This may imply that females, especially nonaggressive, are more likely to feel comfortable expressing sexual language via text messaging that may not be expressed in other forms of communication. Males are generally the sexual aggressors in more direct forms of communication. Text messaging may be a medium for females to express themselves sexually that is more socially acceptable. Previous research in the area of sexting implied that a majority of sexts were sent between romantic partners or new romantic prospects (Lenhart, Madden & Hitlin 2009). The negative views of sexting by teenagers may develop into a more healthy form of sexual expression for females as young adults. If most sexting is shared between romantic

partners nonaggressive females may be more likely to express their sexual desires to partners when they may not in a face-to-face context.

#### *Limitations and Further Research*

Sexual word means are low, around one percent, but more than twice as high as sample texts used to develop the LIWC which may be due to the brief nature of text messaging (Tausczik & Pennebaker 2010). Another possibly confounding issue is that the word “love” is a part of the sexual word category. The word love was used often in the text message samples. Though love is a part of sexual language, the results may seem misleading when one considers sexuality. Further research is needed to assess gender differences in text messaging language as a function of other personality traits. Text messaging continues to grow in popularity in all in all age groups. Continuing research in the area of personality and text messaging language is imperative because little has been done in the area. Understanding the individual could aid in researching the phenomena of interpersonal communication in the age of text messaging.



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## Appendix 1

**Text Message Analysis****PURPOSE**

In this study we are examining the language people use when they text. To do this we would like you to describe the last 20 recent sent text messages stored on your cell phones. Please fill in the information from the OLDEST to the MOST RECENT sent text message. It is very important that the text inputs on this form are NOT changed or edited. To do a successful analysis the characters, words, and abbreviations must be exact to the actual sent text messages.

**INSTRUCTIONS**

**Age, ethnicity, and gender-** First fill in **your** age, ethnicity, and gender.

**Time of text message/numerical identity-** Fill in the time and date of the oldest to most recent of the last 20 text messages stored on your cell phone; **EXAMPLE 6:45 pm Feb. 3**. Also fill in a numerical identification 1-20 for each message to indicate different contacts, use the same digit for the same contact throughout the questionnaire; **EXAMPLE 6:47pm Feb. 3, 1**

**Text in message-** Fill in EXACT sent text messages from the oldest to the most recent 20 sent text messages from your cell phone; **EXAMPLE What R U doing 2nite?**

**Type of contact-** Fill in the type of contact to whom you sent the text message and the sex of the text message recipient with an **F** for female or **M** for male. Please enter; friend, family member, work associate, acquaintance, new acquaintance, sexual interest, spouse, boyfriend/girlfriend, or other (please specify). Then fill in a familiarity rating from **1** (unfamiliar) to **9**(very familiar). You may enter more than one type as applicable; **EXAMPLE new acquaintance/sexual interest- M-3**

**Preferred type of communication-** Fill in what type of communication in which you would like to have contacted the person. Please enter; text message, email, social network (Myspace, Facebook), phone call, face-to-face, or other (please specify). You may enter more than one type as applicable; **EXAMPLE phone call, face-to-face, or Facebook**.

**Other information-** At the end of these forms please mention any information that you feel will better explain something that may not be clear such as what an abbreviation stands for; **EXAMPLE PCM – please call me**.

Age \_\_\_\_\_

Ethnicity \_\_\_\_\_

Gender \_\_\_\_\_

**DATA**

<b>Time of Text message/Numerical Identity</b>	<b>Text in message</b>	<b>Type of contact</b>	<b>Preferred type of communication</b>	<b>Other information</b>


Table 1

## Variables in Regression Analysis Predicting the Use of Sexual Words

Predictor	$\beta$	$t$	$p$
Aggression	0.433	1.69	0.092
Gender	0.63	2.32	0.021
Gender by Aggression	-.62	-1.99	0.048

Table 2

Mean Sexual words of Male and Female Texters as a Function of Aggression  
(with Standard Deviations in Parentheses)

Aggression High & Low	Sexual Word Means		
	Male	Female	
High	.79 (1.02)	.61 (.91)	.700
Low	.36 (.60)	1.20 (1.94)	.786
	.577	.910	

Figure 1

Gender Differences in Percentage of Sexual Words as a Function of Aggression Scores

