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Text Messaging and the Relationship to Personality Characteristics and Literacy

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Text messaging has increased greatly during the past few years. Recently, a negative stigma has been attached to the use of textisms (e.g. *lol* for *laugh out loud, dnt* for *don't*). Many teachers and parents believed it harmed one's knowledge of literacy. Contrary to popular belief, a review of the literature has shown that using textims is not harming one's knowledge of literacy. However, difference between male and female users of text messaging has not been studied. Therefore, the current study explored gender differences in textism scores as a function of participant's level of literacy (high, low). Participants completed two questionnaires, a series of tasks on their personal cell phones, and a literacy task. The results of this experiment confirmed there are not differences in textism use between male and female college students in both the high and low literacy groups. Other previous research has concluded that text messaging is reflecting the same linguistic changes and structure that young people currently use today, and it has become a hybrid language.

It would not be uncommon to walk down the hallway of a school, grocery store, or shopping mall to see many people sending text messages. Approximately 197 billion text messages are sent per month in the United States (U.S. wireless quick facts). This number has rapidly grown since 2008 when there were about 75 billion text messages sent per month (Text message statistics, 2010). This exponential growth can be attributed to convenience and affordability as well as the fact that communication methods in the United States have drastically changed (Leung, 2007; Text message statistics, 2010). Clearly, the phenomenon has been integrated into the daily lives of most Americans'. This literature review will look at text messaging and its relationship to personality characteristics such as motivations, anxiety, loneliness, gender, and also its relationship to literacy.

Text speak, textese, and textisms are all used to describe shortened versions of words that are typically due to a 160 character limit on text messages. Common examples of text speak include using r for are, and u for you, and phrases such as brb for be right back or ttyl for talk to you later. Texting can be done through a conventional method which involves pressing the key pad several times to a certain letter or predictive texting which allows a person to press one or two keys that automatically selects a word (Kemp, 2010).

Recently, text messaging has increased in the past few years and has been linked to certain attitudes and motivations among text messaging users. A correlation study

confirmed that mobile phone usage is connected to one's sense of dependence and security as well as a personality extension. In other words individuals who use text messaging or make frequent phone calls may depend on cell phones more than others. Also, the wide variety of cell phones and specific features of those phones allows one to choose a phone that suits their personality (Tian, Shi, & Yang, 2009). For example, Butt and Phillips (2007) found that extraverted individuals are more likely to focus on the visual elements of their phone such as ring tones, back round pictures, and phone covers as opposed to individuals that focused on the specific features of the phone. Other motivations among college student's text messaging include affordability and convenience. Text messaging users and non-users are also aware of the downfalls due to the confusing language, particularly deciphering the meaning of textese. It was also found that text message users have more social anxiety than non-users (Leung, 2007).

Furthermore, preferences for texting or talking have been investigated. It was found that anxious participants are more likely to text than to place a phone call whereas participants who rated higher for loneliness were more likely to talk on the phone than to text (Reid & Reid, 2007). Another finding is that active cell phone usage reduced an individual's loneliness, however, excessive cell phone usage can be a predictor of individuals high in anxiety (Takao, Takahashi, & Kitamura, 2009). On the other hand, it has also been found that socially anxious individuals may use their cell phones as a medium for improving personal relationships with others (Reid & Reid, 2010).

In addition, the relationship of texting on other personality characteristics has also been researched. In a study by Holtgraves (2010), participants were given a five-factor model personality questionnaire, and were also asked to write down the last twenty text messages exactly as they had sent them. The messages were analyzed with a linguistic program that put individual words into categories that help to determine the emotionality of a participant's words. Three main personality factors were assessed: extraversion, neuroticism, and agreeableness. An interesting finding for extraverts is their use of expansions in words (e.g. hellllloooooo), which is opposite to that of participants scoring high in neuroticism who tend to use more text speak. As for participants described as agreeable, no significant correlation was found.

So far, the use of text messaging has been explained by its convenience and affordability, however, the decision one makes to text or talk may be linked to a person's level of anxiety and loneliness. A socially anxious person may prefer texting to avoid face to face communication, or as a relief from a different task. On the other hand, a person who is high in loneliness may be more likely to make a phone call to increase their feelings of intimacy or closeness (Leung, 2007; Reid & Reid, 2007). However, other personality factors such as extraversion, neuroticism, or agreeableness can determine the type of language used in text messages (Holtraves, 2011). Next, the use of texese on literacy will be discussed. The media has attached a stigma to the use of textisms on literacy claiming that it is harming ones knowledge of Standard English (SE) spellings (Drouin & Davis, 2009). Therefore, the next section will review current studies of texting and literacy.

Research has been conducted on children's exposure to text speak and their knowledge of literacy skills. It was found

that children's performance on literacy measures were not harmed by the use of textisms (Kemp & Bushnell, 2011; Plester, Wood, & Bell, 2008). In fact, according to Plester et al. (2008) creating and understand textese may be a process of understanding phonological awareness, which is a person's ability to recognize sound and structure in language (Phonological awareness, 2008).

Consistent with the findings in children, further research has shown college students use of textese on literacy skills are yielding positive or neutral results (Kemp, 2010; Powell & Dixon, 2011). Another study having similar results was conducted by Drouin and Davis (2009). Two groups were formed according to those who use text speak (34) and those who do not (46). To measure literacy processing participants were timed while translating both text speak sentences to Standard English and vice versa. Spelling and reading tests was also administered. There were not any significant differences found for spelling, word recognition, or reading skills between texters and non-texters. Further analysis was done pertaining to the texting group only. The results showed that greater amounts of text speak are not correlated with the ability to spell correctly.

On the contrary, there is evidence supporting that the use of texese is harming ones knowledge of literacy. Drouin (2011) found that higher usage of textese in different settings was negatively related to literacy. Participants who used textes on social networking sites (e.g. Facebook, Myspace) and in emails to professors showed lower literacy scores. A possible explanation for a decline in literacy scores is the Low Road to High Road Theory of Transfer Learning (Salomon & Perkins, 1989). The Low Road Transfer is a basic and somewhat routine learning style. For example, if a person has learned how to swing a golf club well and the process has become an automatic response, that person would probably be able to swing a hockey stick easily as it mimics that of golf. On the other hand, High Road Transfer involves higher order thinking. This requires a person to be working on a problem, and simultaneously take away information from other contexts. An example might involve a student contemplating how psychology theories relate to issues discussed in a health class (Salomon & Perkins, 1989). Applying this theory to the present topic, Low Road Transfer would involve a person who uses textisms to transfer this style of writing to other areas such as social networking sites, emails, etc. However, High Road Transfer would require a decision to use standard spellings. As in the study by Dourin (2011), it may be that lower literacy scores were associated with participant's inability to switch back to High Road Transfer.

Given that there is contradicting evidence concerning texting and literacy, most of the current research on both children and adults shows a positive or neutral relationship between the use of textese and literacy skills. Regarding the support to textese and literacy, there is virtually no evidence of gender differences in these tasks. There is, however, research relating to gender differences in linguistic comparisons (Leaper & Ayres, 2007; Newman, Groom, Handelman, & Pennebaker, 2008). A common belief is that women are more talkative than men, however research has shown that men are more talkative than women. Women also use more affliliative speech and less assertive speech than men. Affiliative speech contains agreements and positive comments to another whereas assertive speech is used to move ahead for personal gain (Leaper & Ayres, 2007). Looking one step further, gender differences have also been analyzed through text

messages. Consistent with Leaper and Ayres (2007), gender differences were found in samples of text messages supporting women's greater use of affiliative speech and men's greater use of assertive speech (Newman et. al, 2008).

In summary, research has been conducted on emerging technology, such as text messaging and the relationship to various personality aspects, as well as literacy. These topics are important to study as the number of text messaging users has more than doubled in the past three years (U.S. wireless; Text message statistics, 2010). According to Leung (2007) this could be attributed to the affordability and convenience of text messaging. Other findings such as a relationship between text messaging and personality found that extraverts are more likely to spell out their words in Standard English and extend the spelling of certain words whereas individuals high in neuroticism are more likely to use the text speak language (Holtgraves, 2011). Also, text messaging use may also be a preference for individuals who are socially anxious, while talking on the phone or face to face communication would be the preference for individuals high in loneliness (Leung, 2007; Reid and Reid 2007).

Further research conducted on texting and literacy has found that both children and adults knowledge of Standard English spelling is not harmed by using text speak (Kemp & Bushnell, 2011; Plester et al., 2008; Kemp, 2010; Powell & Dixon, 2011; Drouin, 2009). It is possible to conclude that there is not a significant relationship between texting and literacy scores; however, one aspect left out of these researchers' findings is whether there are gender differences among literacy scores of texting users.

Therefore, the present study will investigate whether gender differences are apparent in textism use among college students. Current research on gender and language has shown that men talk more and use more assertive speech, and women talk less and use more affiliative speech (Leaper & Ayres, 2007; Newman et. al, 2007). Since there are significant differences in the way men and women use language it is predicted that there will be gender differences between textism use and participants literacy level.

Method

Participants

Participants were a convenience sample of 21 (10 male, 11 female) undergraduate students taking psychology courses at Minnesota State University Moorhead during spring semester 2012. They received extra credit for their participation in this study. The participants had an average age of 21.52 and an average reported GPA of 3.48. The participants were predominately Caucasian and English speaking.

Materials

A demographic questionnaire was used to collect participant characteristics such as: sex, age, GPA, race, year in school, and native language (see Appendix A). A text messaging questionnaire was used to assess the frequency participants send text messages, their use of textisms, and their use of the predictive texting feature (see Appendix B). The Written Expression Curriculum-Based Measurement (WE-CBM) by Powell-Smith and Shinn (2004) was used to measure literacy ability (see Appendix C). A text messaging task was used to measure participant's use of textisms. Sample questions that were used

included "what are you doing tonight?" and "would you like to meet up and study for the exam tomorrow?" (See Appendix D for full text messaging task). Participants were required to provide their personal cell phones for this study. Participants were not required to send or receive any text messages or use calling minutes, however, they were required to provide a demonstration of the functions on their cell phone.

Procedure

This study used literacy level (high, low) and gender (male, female) as the independent variables, and textism score as the dependent variable. The participants completed the study individually, and performed all tasks in the same order. First, participants were greeted and asked if they had their personal cell phone available to be used in the experiment. Then, they were asked to read and sign an informed consent acknowledging their participation rights. Following that, the participants filled out the demographic questionnaire. After that, the participants were instructed to take out their personal cell phone and make sure the text messaging mode was set to the ABC (single key press entry) mode. Then the participants completed the text messaging task. The following instructions were given. "You will have 12 minutes to complete the numbered items. After you complete each item please show your cell phone to the experimenter." Only the items that required the participants to text a message were scored. The score was based on the sum of all textisms used in the messages. Participants were not required to actually send any text messages. The participants were reminded every two minutes how much time they had left to complete the tasks and every minute when they reached the four minute marker. After that task, the participants received the WE-CBM with the following directions. "Please write an argument for or against an issue related to cell phones. First you will read a prompt, and you will have one minute to decide what you will write, and five minutes to write your argument." The experimenter exited the room during the five minute writing period. After the time was up the experimenter entered the room and stated their time for writing was up. Specific scoring on the writing task was a combined score for Total Words Written (TWW) and Correct Writing Sequences (CWS). After that, the participants completed the text messaging questionnaire. Finally, the participants were thanked and debriefed.

Results

The hypothesis of this study was there will be gender differences in textism use among college students according to their literacy level. Eleven females and ten males participated in the study. A 2 (gender of participant: male or female) x 2 (literacy score: high or low) between- subjects analysis of variance (ANOVA) was conducted to determine if there were differences in textism use among participants. The high and low literacy groups were determined by the average literacy score (M=185.29) on the WE-CBM. Participants in the high literacy group scored 185 points or higher, and participants in the low literacy group scored 184 points or lower. The descriptive statistics showed that females in both the high (M=2.25, SD=2.63) and low (M=6.43, SD=8.38) literacy groups used fewer textisms than male participants in the high (M=2.33, SD=2.10) and low (M=13.5, SD=11.11) literacy groups. Figure 1 shows depicted means. Inferential statistics indicated that the main effect of textism use on gender was not significant,

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F(3,17)= 0.56, p=0.46. The main effect of literacy level on textism use was marginally significant, F(3,17)=3.17, p=0.09. The interaction of gender and literacy was not significant, F(3,17)=0.53, p=0.48.

Discussion

The current study sought out to determine if there are gender differences in college student's textism use as a function their literacy. The hypothesis of this study was not confirmed, there were no significant difference found between males and females texism use according to their literacy level. The descriptive results indicated that females used fewer textisms and had higher literacy scores than male participants. This evidence contradicts findings by Rosen, Chang, Erwin, Carrier, and Cheever (2010) who found that females used more textisms than males. This is notable as research conducted on gender and language has found that men talk more and use more assertive speech, and women talk less and use more affiliative speech (Leaper & Ayres, 2007; Newman et. al, 2007). Therefore, it may have been expected that males would have used more textisms as they tend to talk more than women, which is consistent with the results of the current study. To further explain the results of this study, research on text messaging and literacy has concluded that the text speak language is reflecting the same linguistic changes and structures that are occurring in the way young people use language. Therefore, it is not detrimental to language, but rather it is a hybrid language (Tagliamonte & Denis, 2008; Thurlow, 2006). Furthermore, some participants stated that using textims is a personal choice, and the recipient the message plays a role on whether or not they will use textisms. For example, one participant stated that they do not use textism to their parents, because they have difficulty understanding the meaning of certain textese, however, the participant may use textisms to their friends quite often.

Interestingly, this study found marginally significant results for level of literacy on the number of textisms used. This finding is inconsistent to most of the previous research which found no link between textism use and literacy (Kemp & Bushnell, 2011; Plester et al., 2008; Kemp, 2010; Powell & Dixon, 2011; Drouin, 2009). However, Drouin (2011) also found that higher usage of textese in different settings was negatively related to literacy. Students who used textisms in other technologies like social networking sites and emails had lower literacy scores. The finding in the present study can be explained by the Low Road to High Road Theory of Transfer Learning, introduced by Salomon and Perkins (1989). The Low Road Theory is a way to generalize a learned concept to another that is similar, while the High Road Theory is applying one concept to another. In the case of this study, it may be that participants were not able to switch from the Low Road, which was the text messaging task, to the High Road, which was the literacy task. Some participants who used the most textisms also did not use proper grammar and techniques during the writing task.

There were limitations to the findings of this study. Some participants were able to guess what the experimenter was looking for. This could be due to the method the experimenter used. The text messaging task contained more texting demonstrations that other functions that were asked to be demonstrated. This may have led to participants either using more or less textism than they normally do, and also may have

led to more variability in the dependent variable measure for a particular group. Another possible confounding variable was a ceiling or floor effect. Several participants did not use any textisms, while others used several per message. Additionally, Participants may not have achieved a literacy score that reflects their true knowledge, because they might not have known the experimenter was grading their writing task on mechanics rather than content. Also, the experimenter tried to create pressure by timing participants while they completed the text messaging task in hopes of obtaining more textisms from the participants who use them. Unfortunately, many participants were unable to complete the task in the required amount of time. This may have played a role in the amount of textisms certain participants produced, as timing the participants did not create pressure as it was intended.

Future research should be conducted on gender differences in textism use on literacy to further investigate this study's findings. The current study had a lot of variability within scores and large standard deviations. A follow up study should be conducted involving a greater number of participants to determine if there are differences in textism use among males and females. It is also suggested that an altered method be used in a future study to help eliminate participants from guessing the true nature of the study. The text messaging task should include balanced items of texting and performing other functions on one's phone, and also creating a new way to impose pressure upon the participants.

Furthermore, it would be interesting to conduct a similar study involving children. Plester et al. (2008) found that creating and understand textese may be a process of understanding phonological awareness. It may be that children possess the ability to learn both types of languages, standard English and text speak, simultaneously. Since children are learning these concepts at the same time, they may use more texisms than adults. Therefore, it is possible that gender differences in textism use exist in children.

The completion of this study has found that male and female college students are not using text messaging differently. The mean scores indicated that females used less textisms and had higher literacy scores than males, however, these results were not significant. Large standard deviations indicated that a larger sample size was needed, as well as a revised method. Future research should be conducted on gender differences in textism use among adults and children to further understand the relationship between textism use and literacy.

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Appendix A

Please fill in the appropriate information:

Sex:
- o Male
- o Female

Year in School:
- o Freshman o Sophomore o Junior o Senior

Race:
- o Asian/Pacific Islander
- o Black
- o Caucasian/White
- o Hispanic
- o Multiracial
- o Other (please specify)_____

GPA (0.0-4.0):_____

Age:_____

Native Language:_____

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Appendix B

Please Estimate the following:

How many text messages do you send per day?

- ○ 0-25
- ○ 25-50
- ○ 50-75
- ○ 75-100
- ○ 100 or more

Why type of texting option do you use?

- ○ ABC (multi-press method)
- ○ Predictive (entire word input by a single key press)
- ○ T9 (texting on 9 keys)
- ○ Swype (continuous finger motion across keyboard)
- ○ Other:_____

How often do you use textisms (e.g. *lol* for *laugh out loud, dnt* for *don't, ur* for *your*)?

- ○ Rarely
- ○ Sometimes
- ○ Always

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Appendix C

Please write and support an argument providing your reasons for or against the use of text messaging while driving.

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Appendix D

1) Use the calculator function to multiply 23.34 by 6.9.
2) Text: I'm busy right now I'll have to talk to you later. Call me around 8:00 tonight. Can't wait to hear about your trip to Mexico!
3) Text: Oh my gosh did you hear about Jenny? She is getting married next summer. I can't wait for the wedding!
4) Access the calendar function and find May 21, 2012.
5) Text: What are you doing tonight? Would you like to meet up and study for the exam tomorrow?
6) Use the camera function to take a picture.
7) Text: Hey! How are you doing? Do you know if Jared and Sally are still dating? Oh it's no big deal, don't worry about it.
8) Text: You have to check out the pictures I just took. They are totally awesome! I hope you like them.
9) Text: You have to check out the pictures I just took. They are totally awesome! I hope you like them.
10) Text: I might be late to the party tonight. Could you please order for me? I'll pay you back later.
11) Text: Tomorrow I'm going to Minneapolis to visit my aunt and uncle. We will visit the Mall of America, and also go to the Science Museum.
12) Use the calculator function to subtract 89.597 from 348.89.
13) Text: That's fine. Just text me when you are finished so we can meet up. What grade did you get on the exam? I will definitely see you for lunch!
14) Text: Are you serious? What kind did he get? You should ask what color, how many miles, and what year it is. By the way, don't forget I get shotgun.
15) Adjust the volume to silent, and then to loud.
16) Text: Hey do you think you could buy my ticket? They close at nine and I want to make it there on time. Sounds good I'll talk to you later.
17) In you phone's settings access the display menu. Adjust the backlight on your phone to turn off after 30 second

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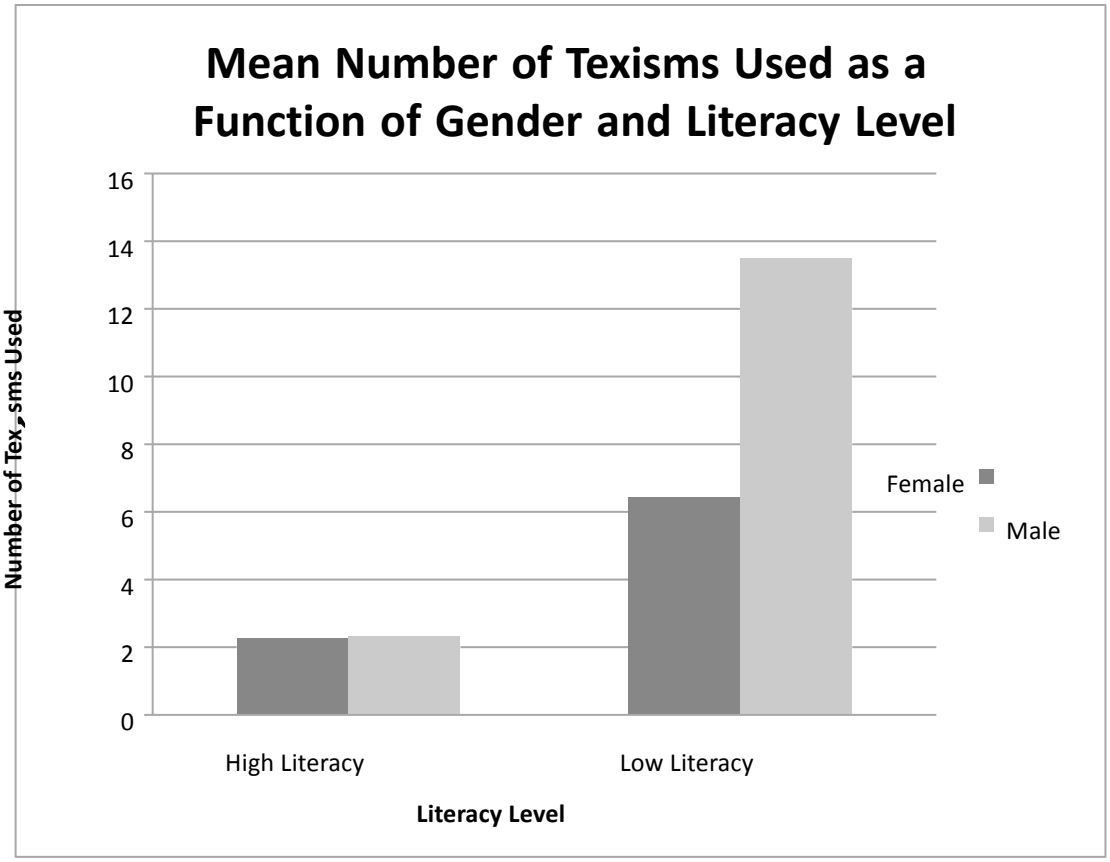
Figure 1



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