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TECHNOLOGY, TWEENS, AND THE EFFECT OF TECHSPEAK ON
ENGLISH GRAMMAR

DREW P. CINGEL

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Reviewed and approved* by the following:

S. Shyam Sundar
Distinguished Professor of Communications
Thesis Supervisor and Honors Adviser

Mary Beth Oliver
Distinguished Professor of Communications
Thesis Second Reader

*Signatures are on file in the Schreyer Honors College

Abstract

Within the past decade, cell phones have become a ubiquitous accessory, with more and more adolescents using them as the primary mode of communication. Along with it has grown the culture of text messaging, with its short, terse exchanges, abbreviations, and grammatical compromises. Gone are the days of carefully composed e-mail messages. If the bulk of an adolescent's textual exchanges occurs in the form of short text messages, might it adversely affect his/her sense of written grammar? A survey was conducted to test the possibility that higher numbers of text messages sent and received by sixth, seventh and eighth grade children would lead to significantly lower scores on an age-appropriate grammar assessment. Results indicate support for this hypothesis. Also, this study presents a model where the average number of errors in sent text messages mediates between average received error and a child's total grammar score, indicating support for Social Learning Theory and confirming anecdotal evidence of parents and teachers regarding a negative effect on grammar. Implications of these results are discussed.

Table of Contents

Introduction	1
Literature Review	4
Methods	8
Dependent Measure	9
Independent Variables	10
Results	13
Figure 1	15
Figure 2	18
Table 1	18
Table 2	19
Discussion	19
Limitations	23
Directions for future research	24
References	26
Appendix A: Complete listing of survey materials	28
Academic Vita	

Throughout the world, cell phones have become omnipresent in classrooms, cafeterias, and hallways. This boom in popularity among adolescents has led to a change in their use. No longer used solely to place a call, cell phones are increasingly used to send text messages (Jones & Schieffelin, 2009). Research has indicated that Americans use cell phones to send text messages more than they use them to place phone calls (Mindlin, 2008). A 2007 survey by the Cellular Telecommunications Industry Association (CTIA) found that 28.8 billion texts messages were sent in June 2007 alone, constituting a 130% increase from June 2006. Importantly, children ages 13-17 send more text messages than any other age group, averaging 1,742 a month (Mindlin, 2008). A more recent survey conducted by The Kaiser Family Foundation in 2008 found that 66% of children ages 8-18 own a cell phone, compared to 39% of 8-18 year-olds in 2004. However, this quick rise in popularity has led parents and teachers to question the effect of using this technology on a child's grammar skills (Eger, 2007).

Similar to online communications such as instant messaging, the speed, ease, and brevity of text messaging has created a perfect platform for the adaptation of the English language. These changes in technology have led to what could be called an evolution of grammar, the basis of which is being seen today through the use of what we shall call techspeak. This new form of language has evolved from regular English due to a need for speed and brevity while chatting online or sending a text message. This language differs from English in that it takes normal English words and modifies them, using conventions of abbreviation, such as initialisms (lol for laughing out loud), omission of non-essential letters (wud for would), and the substitution of homophones (gr8 for great) (Jones & Schieffelin, 2009). In addition, techspeak does not place an emphasis on proper

punctuation or capitalization, all in the interest of quickness. This evolution of the English language may seem innocuous when confined solely to electronic communication. However, there is much debate amongst leaders in education, teachers, and parents as to the effects of techspeak on the grammar and writing skills of adolescents in the classroom setting (Sidener, 2003; Eger, 2007).

Adolescents are an important age group to study when considering this question because they have long been considered a main source of linguistic novelty as they attempt to express a small group identity (Baron, 2005). In addition, adolescents often differ from college-aged individuals in that they are much more accepting of techspeak and use this language much more in instant message and text message conversations (Baron, 2005). As evidenced above, the 13-17 year-old age group sends more text messages per month than any other age group. However, the youngest half of his age group is most important to study in regards to the effect of electronic communication on grammar because they are also in their formative learning years in middle and high school, which helps to explain why parents, teachers, and school administrators worry about the effects of techspeak (Sidener, 2003; Eger, 2007).

As online chatting and texting become more popular, techspeak continues to creep into schools. Some teachers and administrators argue that techspeak has a negative effect on English grammar, is unprofessional, and should be kept out of the classroom at all costs. These are the same people that agree with the Librarian of Congress, James Billington, when he said that this new form of communication could be damaging “the basic unit of human thought – the sentence (Lenhart, Arafeh, Smith, Macgill, 2008).” Others argue that ignoring techspeak in classrooms simply keeps the English language

from evolving and progressing naturally. Many suggest that electronic communication is simply a “new species of communication” with its own form of grammar (Lenhart, et al., 2008).

However, perhaps the most important question remains; how do adolescents view the writing they compose through electronic transmissions? A recent Pew Internet and American Life Project with the National Commission on Writing telephone survey found that 85 percent of all 12-17 year-olds used some form of electronic media to send messages (either text messaging, instant messaging, email, or commenting on social message sites). Importantly, a majority of adolescents (60 percent) do not view this type of communication as writing and 64 percent admit to using some type of informal writing style into these communications (Lenhart, et al., 2008). This distinction is important because this survey also found that a vast majority of adolescents, 86 percent, think that having good writing skills is important to success in life. In contrast, only 11 percent reported that electronic communications have a negative effect on their writing skills.

Since a majority of writing which occurs in school is relatively informal in nature, it is not too surprising that techspeak has begun to enter into the classroom setting. Daily, children are asked to write in journals, write creatively, or take notes, all informal modes of writing (Lenhart, et al., 2008). However, the Pew survey did find that children who own a cell phone were more likely to use informal writing styles found in online communications than children who did not own a cell phone. In addition, survey results indicate that the more children use electronic communication to speak with their friends, the more likely they are to ignore punctuation and capitalization rules (70 percent) or use

text shortcuts (57 percent) (Lenhart, et al., 2008). The question remains, though; does techspeak have an overall deleterious effect on the writing skills of adolescents?

Unfortunately, there is a lack of empirical research about the effects of online and texting technologies on grammar skills in young adults. This study purports to fill this void. With sixth, seventh and eighth grade children as a sample, a group that has grown up with normal English grammar and techspeak, we used the following research questions to guide this study:

RQ1: What is the relationship between the number of text messages a child sends and receives and their scores on a grammar test?

RQ2: What is the relationship between average number of errors made while text messaging and perceived utility of text messaging?

RQ3: Do the different styles of error common in text messages (word and structural error) have different effects on grammar assessment scores of children?

RQ4: What is the relationship between time spent online and a child's grammar assessment score?

It is important to consider that adolescents are active audiences in the consumption of electronic media. Based on the assumptions of uses and gratifications theory, this means that children are interested in the utility of a technology as well as the motivations and prior interest in using said technology (Palmgreen, Wenner, & Rosengren, 1985). Although uses and gratifications theory has not been used extensively to study text messaging usage, some researchers have used the testimony of adolescents to understand the motives behind text message usage. Conceptually, the variable of perceived utility has been defined as the extent to which individuals adopt a new

technology due to its convenience (Leung, 2007). This concept has been operationalized through use of Likert-type scales, many of which combine a variety of potential gratifications. For instance, Leung (2007) used a 20-question index comprised of many possible gratifications; escape, affection, convenience, entertainment, fashion, inclusion, sociability, and relaxation. These were measured by employing a 5-point Likert-type scale. Studies have indicated that perceived usefulness has a direct positive impact on a consumer's adoption of new technologies (Kim, Park, & Oh, 2008). Leung (2007) found that many adolescents were motivated to use text messaging because of its convenience. Most importantly, his study found the text messaging usage was most closely linked to this gratification. Similarly, Kim et al. (2008) found that perceived enjoyment, perceived monetary value, perceived usefulness, and perceived ease of use are major factors in the adoption of text messaging usage.

H1a: Adolescents who score high on the utility of text messaging measure will report higher rates of text messaging.

H1b: Adolescents who score high on the utility of instant messaging measure will report spending more time on instant messaging.

Social Cognitive Theory is also an important theory to understand in regards to the motivations behind engaging in techspeak while using electronic media. This theory argues that humans were self-developing and self-reflecting, fully capable of producing social systems (Bandura, 1986). This theory also presents a new way for humans to learn. Called observational learning, this model assumes that humans have adapted the ability to quickly expand knowledge through information conveyed by a large variety of resources (Bandura, 1986).

Observational learning depends on four main subfunctions: attention processes, retention processes, production processes, and motivational processes (Bandura, 1986). In other words, in order to learn by watching someone else, one must be able to pay attention, remember the information learned, figure out how to recreate the learned behavior, and be motivated to repeat the behavior when an appropriate situation arises. Braaksma, van den Bergh, Rijlaarsdam, and Couzijn (2001) found that children who learn through observation and have high levels of motivation to recreate the behavior can more easily deploy their previous skills and knowledge, learn a new set of skills, and transfer those new skills to different situations. This could have practical implications for our study in that children who learn techspeak through observation should be more motivated to recreate the language in an effort to keep up with their peers and the speed of the internet.

H2: Children who receive more text messages from their peers will report higher levels of sent-message error in their text messages.

Braaksma, Rijlaarsdam, van den Bergh, and van Hout-Wolters (2004) found that students who learn writing through observation may develop a better base for writing. This base helps students in the orchestration of the writing process. Previous research has indicated that observational learning is an effective way of learning how to write (Graham and Harris, 1994; Zimmerman and Kitsantas, 2002). However, these previous studies only looked at the results of observational learning on the final product, not on the writing processes leading to the final product. Adding to the research, Braaskma et al. (2004) studied the spectrum on observational learning on writing; how it affects the processes and how the processes affect the final product. Braaksma, et al., (2001) found

that when students observe others in order to learn writing skills, they focus and reflect upon the actual writing approach taken by the models. Also, students do not write when learning observationally, which allows them to focus solely on the actions of the behavior. Graham and Harris (1994) found that observational learners use the strategies of observation, evaluation, and reflection, which allows them to gain information and refine strategies for new writing skills. When children observe instead of act, they are able to learn more procedural knowledge, which deepens schemas about the task at hand. Therefore,

H3: Children who self-report receiving a high number of errors will also report committing a large number of errors.

Observational learning also raises self-efficacy levels or personal beliefs in capabilities (Bandura, 1986). Research by Schunk (1991) found the effectiveness of observational learning and self-efficacy levels depended on the perceived similarity in competence between model and observer. A study by Braaksma, Rijlaarsdam, and van den Bergh (2002) found that model-participant similarity facilitated learning. In addition, weak writing-skilled participants benefited from observational learning. Instead of focusing on executing writing tasks, participants focused on watching others. This study focused solely on participants putting ideas together coherently in order to form an argument. Previous writing skills were not necessarily needed; participants learned from others how to best form the argument.

This research can in turn be applied to the learning of techspeak. Generally, children converse with others who are of similar competence online or via text. In doing so, they observe the writing skills of others. Much of the evolution of techspeak centers

on shortening language in order to type more quickly. If a child were to see a particular construction that aids in this process, he or she would be more likely to remember it and use it the next time a similar situation arose. Based on the work of Braaksma, van den Bergh, Rijlaarsdam, and Couzijn (2001) it can be concluded that, since children do not focus on learning to write while online or while texting, they are more likely to focus on the writing approach taken by the model. If a child is motivated to recreate the action, they will do so more quickly and will be able to do it across various mediums. However, as techspeak differs greatly from regular English, there should be a change in grammar skills as children use their texting and online skills in inappropriate areas.

H4: The more time one spends instant messaging each day, the lower their scores on a grammar assessment.

H5: The more one receives or sends texts each day, the lower their scores on a grammar assessment.

H6: The more errors a child reports making in sent text messages, the lower their score on a grammar assessment.

Method

Participants

Participants were sixth, seventh, and eighth grade middle school students from a mid-sized school district on the east coast. English teachers were approached prior to the beginning of the study and asked to volunteer class time. The school district's administration was asked to give consent prior to data collection. In all, 542 surveys were given to children in the classroom; 228 completed surveys were returned for a response rate of 42.1 percent. Of this final sample, 36.8 percent were from sixth grade (n=84), 21.5

percent were from seventh grade (n=49), and 41.7 percent were from eight grade (n=95). Ages ranged from 10 to 14, with a mean age of 12.48. Males represented 39.1 percent of the final sample.

Dependent Measure

The dependent measure used was a 22-item diagnostic grammar assessment instrument. This assessment was adapted from a ninth grade grammar review test. The test was reviewed to ensure that children have been taught all of the concepts covered by this assessment by sixth grade. The first portion of the assessment consisted of 16 questions designed to test the child's grasp of verb/noun agreement, use of correct tense, use of homophones, use of possessives, and use of apostrophes. These questions asked children to respond by circling the word needed to make the sentence correct. For example, participants were asked to answer "The pictures in this new magazine (show, shows) the rugged beauty of the West." The second portion of the assessment asked participants to indicate whether or not a sentence was correct, such as "The boy yelled, "Please help me"! (Correct/Incorrect). This portion tested the child's understanding of comma usage, punctuation, and capitalization. Sixth graders scored a mean of 17.26 (s.d.=3.11), seventh graders scored a mean of 17.92 (s.d.=2.74), and eighth graders scored a mean of 18.27 (s.d.=2.66). There was a significant difference between sixth and eighth grade means ($p < .05$) but no significant differences between sixth and seventh or seventh and eighth grade scores.

Independent Variables

Usage

Children were first asked to think about their average day and record the time they spend using a variety of technologies. Importantly, children were asked to self-report the number of text messages they send and receive in an average day, as well as the time they spend online, both chatting and surfing the web. Answers were reported with a number indicating the average number of sent and received text messages a day or an average amount of time spent chatting or surfing online. Children reported receiving 46.03 (s.d.=83.61) and sending 45.11 (s.d.=85.24) text messages per day. In addition, children spent an average of 59.26 (s.d.=63.67) minutes online each day. Finally, children reported spending 18.11 (s.d.=43.68) minutes instant messaging online a day.

Attitudes towards text messaging and instant messaging

Next, the survey asked children to record their attitudes toward both text messaging and instant messaging on the take-home survey by using a 5-point Likert type scale where an answer of 1 indicated that the child strongly disagreed and where an answer of 5 indicated strong agreement. For each form of media, they were asked questions regarding the convenience and overall utility of the technologies, such as “The speed of text messaging/instant messaging makes it convenient to use.” Questions were also included on these measures in order to determine if a child’s use of these technologies is primarily driven by parents or friends. For instance, “I text because my parents do” or “I text because most of my friends do.” (see Appendix A for a complete list of the measures)

The text messaging attitudes scale was split into 3 separate indices; perceived utility of text messaging, parent-driven text messaging, and peer-driven text messaging. The perceived utility index consisted of 6 items (Cronbach's $\alpha=.78$). Children scored a mean of 3.74 (s.d.=.76) on this measure. The parent-driven text messaging index consisted of two items. This index had a moderate correlation (Pearson's $r=.31$, $p<.0001$). Children scored a mean of 2.42 (s.d.=.89) Finally, the peer-driven index consisted of two items (Pearson's $r=.34$, $p<.0001$). Children scored a mean of 2.43 on this measure (s.d.=.78).

Message Error

The independent variable of sent and received message error was assessed by asking children to self-check their last three sent and their last three received text messages to separate individuals and record the number of errors present in each text message. This made for a total of 6 reviewed text messages. This was done to ensure that a wider range of messages was included in this self-check, with a wider range of text message length. Also, it ensured that the text messages included would be sent to different groups of individuals. For each of the three received text messages, children were asked to list their relationship to the sender. This was also done for each sent text message. Children then self-reported the number of errors they found in each text message and separated this error into one of five categories. The five categories of common text message error used in the survey were use of abbreviations, omission of non-essential letters, substitution of homophones, punctuation errors, and capitalization errors. The first three are common types of text message errors as presented by Jones and Schieffelin (2009); abbreviations and initialisms, omission of non-essential letters, and

the substitution of homophones. The last two are more common structural problems found in text messaging; punctuation and capitalization errors. Children were instructed to read their text message, paying attention to the grammar used, before reporting the number of each type of error with a single number. Children were instructed to not record errors unless they were completely sure that it was incorrect. Overall, children self-reported 7.17 (s.d.=5.39) errors per received text message and 5.48 (s.d.=5.37) errors per sent text message.

Procedure

Children were introduced to the study by way of an opening statement, which explained what was expected of the children should they wish to participate. After this was completed, they were given a grammar assessment, which was to be completed during class time. The grammar assessment took about 10 minutes to complete. Once finished, children handed in the grammar assessments and were given a survey to complete at home. Attached to the take-home survey was a parent recruitment letter, informing parents as to the procedure of the study, and informed consent materials, which parents were asked to sign in order to allow their child to participate in the research. In addition, children aged 14 were asked to sign the informed consent form. Children aged 13 and below were told that they would be given the opportunity to verbally assent when the researcher returned to collect the surveys.

Next, they were told about the types of questions that they would need to answer in the survey and given time to begin completing the survey during class time, at the teacher's discretion. Children were informed they were to think of their average day when completing questions regarding their media use. In addition, children were told to

only record errors in the message error section of the survey if they were completely sure they were wrong. Finally, those that did not use a certain technology were told only to answer questions that applied to the technologies they currently are using. Children were also given the opportunity to ask any questions they may have. Participants were given one week to return the completed surveys to class. Take-home surveys were linked to the grammar assessments through the use of unique identification codes. Once both portions of the study were linked, the identification codes were removed. After one week, surveys were collected and children were verbally assented in the classroom.

Results

Preliminary analysis indicated a significant difference ($p < .05$) in grammar assessment scores by grade. With this in mind, all subsequent analyses were performed with grade as a control variable. In addition, all collected data were reviewed to ensure that self-reported answers matched in certain key areas. Specifically, surveys of children who reported sending and receiving text messages were checked to make sure they did not skip the self-report message error section of the survey. Similarly, the surveys of children who reported not sending or receiving text messages were reviewed to ensure they did not respond to the self-report message error section, since they should conceivably not have any text messages to self-assess. Surveys which did not match either constraint were excluded from data analysis. 12 surveys matched this exclusion criterion and were not used.

First, a principal-components factor analysis was run on the attitudes toward text messaging scale. This factor analysis yielded three eigenvalues higher than one; these were used to split this set of questions into three groups; perceived utility of text

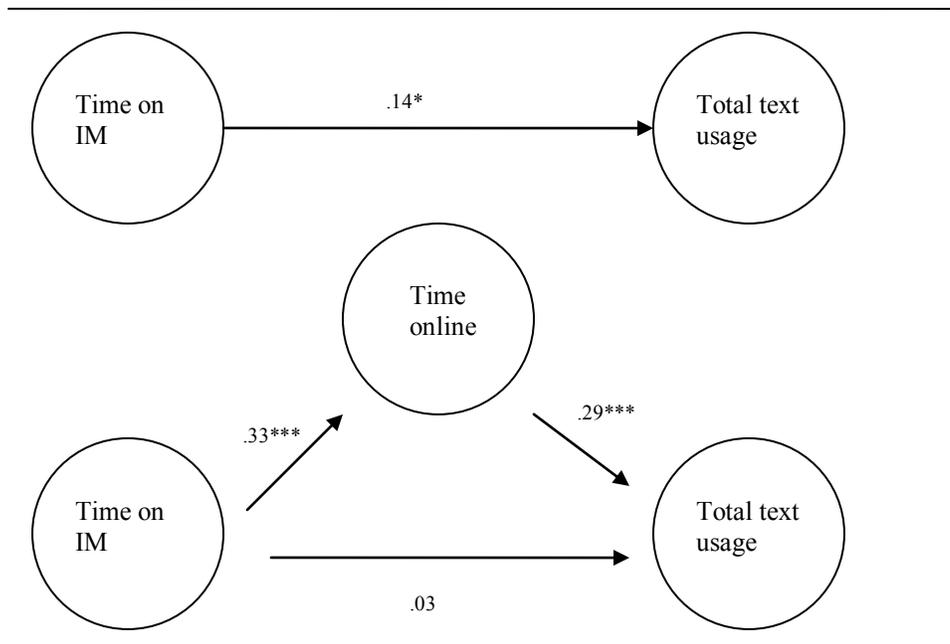
messaging, parent-driven text messaging, and peer-driven text messaging. Together, these accounted for 74.13 percent of the variance. The proposed positive relationship between perceived utility and total number of text messages sent and received was then tested. This resulted in a significant relationship ($\beta=.38$, $p<.001$), indicating support for H1a. Similarly, a principal-components factor analysis was run on the attitudes toward instant messaging scale. This factor analysis yielded two eigenvalues greater than one. These were used to split this set of questions into two groups; perceived utility of instant messaging and parent-driven instant messaging. These accounted for 56.45 percent of variance. A test of H1b, predicting a positive relationship between perceived utility and time spent instant messaging, again yielded significant results ($\beta=.28$, $p<.01$). This result supports the proposed relationship in H1b.

In addition, a child's average number of reported errors in text messages was tested with perceived utility of text messaging. Again, significant results were found, providing an answer for the posed RQ2 ($\beta=.16$, $p<.05$). Going further, the relationship between average number of reported errors in sent text messages and perceived utility was tested. No significant result was found ($\beta=.13$, $p=.13$). Also, no significant result was found between average number of reported errors in received text messages and perceived utility ($\beta=.13$, $p=.13$). These results can be used to better answer RQ2.

The relationship of H2 was tested in order to see if children who are peer driven to text message will commit more errors in their sent text messages. This test did not find significant support of this relationship ($\beta=.12$, $p=.16$). However, the average number of sent errors was found to be a significant predictor of received error ($\beta=.56$, $p<.0001$). This result indicates supports for the predicted positive relationship of H3.

Next, the effect of other forms of electronic communication on a child's text messaging usage and a child's grammar assessment score was tested. First, time spent instant messaging and total number of text messages both sent and received were significantly related ($\beta=.14$, $p<.05$). Also, time spent online and total number of text messages was found to be highly significant ($\beta=.29$, $p<.0001$). Both time spent instant messaging and time spent online were significantly related as well ($\beta=.33$, $p<.0001$). However, when time spent online was combined with time spent instant messaging in this model, the relationship between time spent instant messaging and total number of text messages became insignificant ($p=.71$).

FIGURE 1: MEDIATING EFFECT OF ONLINE TIME



* indicates $p<.05$

*** indicates $p<.0001$

This result indicates the mediating effect of time spent online between the amount of time spent instant messaging and total number of text messages.

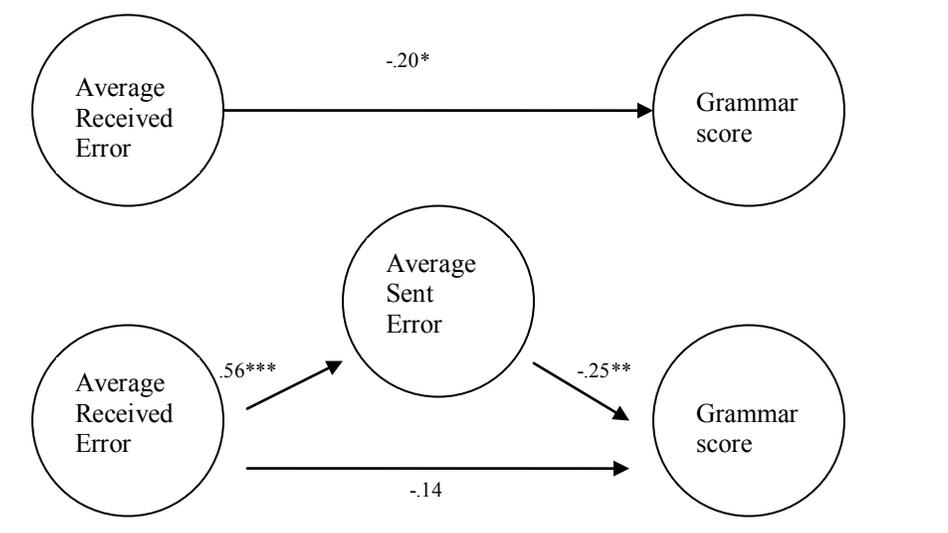
These variables were then used to test relationships between other forms of electronic communication and grammar assessment score. The first test, between time spent instant messaging and grammar assessment score, proved to be insignificant ($\beta = -.04$, $p = .55$) and did not yield support for H4. Finally, the relationship between time spent online in general and grammar assessment score was tested in order to understand RQ4. Once again results did not indicate that other electronic forms of media, in this instance time spent online, have an effect on a child's grammar assessment score ($\beta = -.01$, $p = .85$).

Importantly, significant results were found with the total number of text messages a child sends and receives each day as an independent variable. This result indicates that some forms of electronic media, specifically text messaging do have a negative effect on grammar assessment score, as predicted in H5 ($\beta = -.14$, $p < .05$). In order to more fully understand this relationship and to see if all forms of error contributed to a significant decrease in grammar assessment score, a principal-components factor analysis was used to split the types of error reported into two groups (Word Error, consisting of abbreviations, omissions of non-essential letters, and homophones, and Structural Error, consisting of punctuation and capitalization error). These two groups were then used as criterion variables for grammar assessment score. First, a child's average error across both sent and received text messages was found to be significant in a negative direction with grammar assessment score ($\beta = -.27$, $p < .001$). Further, the average number of word errors was found to have a significant negative relationship with grammar assessment score ($\beta = -.29$, $p < .001$). Finally, tests of average structural error and grammar assessment score yielded results approaching significance ($\beta = -.16$, $p < .06$). Together, these results can be used to answer RQ3.

The negative relationship proposed in H6 between average sent error and grammar assessment score was tested next. This result was found to be significant ($\beta = -.25, p < .01$), which supports H6. In addition, the relationship between average received error was tested in order to understand its relationship with grammar assessment score. This was a significant result as well ($\beta = -.20, p < .02$). Given support for H3, which indicated that average received errors and average sent errors are very significantly related, average sent error was added to the model with average received error and with grammar assessment score as the dependent variable. Once this was done, the effect of average received error on grammar assessment score turned insignificant ($p = .14$). This result indicates that the average number of sent errors mediates the relationship between average received error and grammar assessment score (please see figure 2).

In order to better understand the variance in children's grammar assessment scores, predictor variables were tested as part of a stepwise multivariate regression model. Specifically, four variables were tested, in the following order; grade, average number of sent errors, total number of text messages sent and received, and perceived utility of text messaging. Average number of errors in received text messages was excluded from this model due to this variable's high correlation with average sent text message error. The stepwise multivariate regression analysis indicated two statistically

FIGURE 2: MEDIATING EFFECT OF AVERAGE SENT MESSAGE ERROR



* indicates $p < .05$

** indicates $p < .01$

*** indicates $p < .0001$

significant variables, grade ($\beta = .25$, $p < .01$) and average sent message error ($\beta = -.23$, $p < .01$). Here, neither total number of text messages ($\beta = -.11$, $p = .11$) nor perceived utility ($\beta = -.05$, $p = .47$) were found to be significant independent variables. This result gives additional support to the predicted negative relationship between average sent message error and grammar assessment score in H6.

TABLE 1: REGRESSION ANALYSIS OF TEXT MESSAGING ON GRAMMAR ASSESSMENT

<i>Independent Variables</i>	β	R^2	p
Grade	.253	.069	.002*
Average Sent Error	-.232	.127	.003*
Total Text Messages	-.111	.143	.112
Perceived Utility	-.049	.145	.468

Note: R^2 statistic is cumulative

* indicates significant result

It is important to remember that average sent error is comprised of two different measures; average sent word error and average sent structural error. With this in mind, a

separate stepwise multivariate regression analysis was performed while incorporating these two variables in place of average sent error. Interestingly, average sent word error surpassed grade as the strongest predictor of grammar assessment score ($\beta = -.28$, $p < .0001$), although grade was a significant predictor as well ($\beta = .22$, $p < .01$). When removed from average sent error, average sent structural error became a non-significant predictor of grammar assessment score ($\beta = -.04$, $p = .69$) (please see table 2). This result further clarifies results for RQ3.

TABLE 2: REGRESSION ANALYSIS OF ERROR TYPE ON GRAMMAR ASSESSMENT

<i>Independent Variables</i>	β	R^2	p
Average Sent Word Error	-.277	.1065	.0001*
Grade	.219	.1536	.006*
Average Sent Structural Error	-.035	.1545	.692

Note: R^2 statistic is cumulative

* indicates significant result

Discussion

The results of this study indicate a general negative effect of text messaging on a child's grammar skills. First, children that find either instant messaging or text messaging to be a useful technology will use them at a higher rate. More importantly, children who perceive text messaging to be high in utility report sending and receiving more text message errors. Overall, children scored high on both utility measures included in the survey. Coupled with the previous finding, this indicates that most children encounter many grammatical errors while text messaging. Results did not seem to indicate that children use these technologies due to outside influences; neither peers nor parents were found to be significant predictors of technology usage. However, instant messaging and online usage were found to be significantly predictive of text messaging, with time spent

online acting as a mediating variable. Neither time spent online nor time spent instant messaging was found to be a significant predictor of grammar assessment score, although total number of text messages sent and received was found to have a significant negative effect on a child's grammar assessment score. Here, it is important to remember that perceived utility was found to be significantly predictive of both higher rates of text message usage and higher rates of error in text messages. These results show that not all forms of electronic communication have the same effect on a child's grammar; instant messaging and time spent online are not negatively predictive of grammar, whereas text messaging shows a significant negative effect.

The number of reported errors in received text messages was significantly predictive of the number of sent text message errors as well as grammar assessment score. Again, a mediating effect was found for average sent message error between average received text message error and a child's grammar assessment score. This effect occurred in a negative direction. Children who send more errors in their text messages were found to score significantly lower on the administered grammar assessment. A multivariate regression analysis found that average sent error was highly negatively predictive of grammar assessment score, accounting for nearly six percent of all variance. However, another multivariate regression analysis indicated that not all forms of common error in text messages are negatively predictive of grammar scores. Specifically, average sent word error was found to be negatively predictive of grammar score, so much so that it accounted for more variance (more than ten percent) than a child's grade (five percent). Average structural error was not a significant predictor of grammar.

These results add to the findings of Leung (2007) and Kim, Park, and Oh (2008). Children are active participants when engaging with text messaging technologies and use these technologies because they are perceived to be useful and convenient. As shown through the results of this study, they will exhibit higher rates of text messaging usage when they perceive the technology to be highly useful. However, it appears that children are not driven to use this technology in order to keep up with their friends or their parents. Neither are they concerned with adopting the technology to appear cooler in front of their friends. Self-efficacy levels do not seem to play a role in a child's adoption of techspeak, in contrast to the findings by Shunk (1991), although this study did not have children use an electronic medium. These are interesting findings in that they demonstrate that text message errors are part of what makes sending a text message more useful; it cuts down on the amount of time and effort a child must put forth in order to send communication. Although the use of errors in text messaging may make a child perceive it to be a more useful medium for communication, further results of this study show that this has detrimental effects on a child's grasp of normal English grammar.

In addition, the results of this study indicate that children are able to learn writing skills observationally in an electronic medium, further expanding on the results of Braaksma, Rijlaarsdam, van den Bergh, and van Hout-Wolters (2001), Graham and Harris, (1994), and Zimmerman and Kitsantas, (2002). These previous studies found that observational learning played an important role in the writing process rather than the final result of the writing process. However, all of these previously mentioned researchers studied this effect on standard paper and pencil writing. Our current study is able to extend this effect to electronic-based media. Since children do not normally learn writing

skills online, they are more focused on the observed approach to writing and therefore are even more likely to pick up ideas from the writing to which they are exposed. Applying the theories in these previous studies, children will be more likely to learn a new form of writing and apply it to their own actual writing.

As evidenced by the Pew survey results (Lenhart, et al., 2008), children do not even view electronic communication as real writing. However, techspeak is an important part of the writing process, aiding the efficiency and brevity of sending a text message, while increasing the perceived utility of this communication platform. Here, we see that children make errors in their sent messages based on what they have seen in their received text messages, in accordance with Social Learning Theory and the model of Observational Learning. In turn, by making these errors, children perceive the technology to be more useful, most likely because they can communicate at a much higher rate. The results of Braaksma, Rijlaarsdam, and van den Bergh (2002) were also supported, in that it seems that children do learn writing skills based on observation of people high in model-participant similarity. Since most children use text messaging to communicate with their peers, it stands to reason that the majority of their communication is with others high in similarity.

However, the writing skills learned through text messaging are not for the best. Children who make more errors in their sent text messages scored significantly lower on a grammar assessment. It seems as though the majority of children are unable to successfully code switch between writing a text message and writing a paper for school using standard English grammar. Interestingly, though, the results show that not all common forms of error in text messages have the same negative effect on a child's

grammar score. Punctuation and capitalization errors were not found to have a significant negative effect on grammar in contrast to abbreviations, omissions or non-essential letters, and homophones. This effect could be due to a push in elementary schools to ensure that children know a good sentence starts with a capital and ends with a period. This may make it easier for children to code switch between writing a text message and writing an English paper in terms of punctuation and capitalization usage.

This is an important finding to consider based on the continuing trend in schools to use new forms of electronic technologies. This study does provide empirical support for the multitude of anecdotal evidence provided by teachers. There is no question that techspeak has crept into classrooms; however, the question to date was whether or not children were able to switch between writing a text message and writing a paper for English class. The results of this study indicate that most children are not able to do so. Practically, this has many implications, especially in the classroom. Children must be educated to understand the differences between techspeak and regular English grammar, understanding that there is a time and a place for both forms of communication. It is impossible to stop techspeak entirely; it is a very useful form of communication when confined to places where formality takes a backseat to efficiency and speed. It is important to consider that a vast majority of children in this study found text messaging to be a highly useful technology. Electronic technology usage for the purposes of teaching should be monitored to ensure that this does not allow children to further habituate to using techspeak in the classroom.

Limitations

Unfortunately, this study was unable to examine techspeak under the lens of priming theory. It would have been helpful to see if reading errors in a received text messages from a certain friend primed a child to send errors in a text message. However, when children were asked to report their relation to either the sender or the receiver, they were only asked to indicate whether that person was a friend, parent, or relative. This did not allow researchers to accurately match text messages and therefore did not allow for priming analysis. In addition, the survey did not ask children to self-report the number of errors in instant messages. This was done for many reasons. Mainly, this section was omitted because it would have been difficult to ensure that children instant messaged for a standardized period of time before self-reporting their errors. Since children were asked to complete the survey at home, ensuring some level of standardization during a natural instant message conversation would have been nearly impossible.

Finally, to ensure that children remained anonymous, participants were asked to self-assess their own text messages, rather than submitting the text messages to the researcher for coding. Although children have learned the skills necessary to self-assess their text messages for these types of error, it is entirely possible that not all children were able to report these numbers with the same level of precision. However, this model, thinking that children would not realize some errors were actually wrong, would seem to imply that reported error would be lower than the number of errors actually present. Since significant results were found in regard to this effect, this may not prove to be a major limitation of this study.

Directions for Future Research

This research lays the groundwork for future studies. First, it would be helpful to examine a child's use of techspeak in text messaging under the auspices of priming theory. This would allow for increased theoretical knowledge of this effect. In addition, the effect of instant messaging and online usage on grammar should be studied more completely. Due to the constraints of this research, these effects were not able to be studied in full. It is widely known that techspeak is used in both text messages and instant messages. If instant messages do not have a negative effect on a child's grammar, what is it about this technology that makes it different from text messaging? How could these preventive measures be transferred to text messaging? Furthermore, it would be helpful to more closely examine children who do send errors in their text messages but whose grammar skills do not seem to be affected. Since it is clear techspeak will not disappear, teaching coping skills to children is an important step in the education process.

References:

- Bandura, A.J. (1986). *Social foundation of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Baron, N. (2005). Instant messaging and the future of language. *Communications of the ACM*, 48, 29-31. Retrieved March 24, 2010, from ABI/INFORM Global.
- Braaksma, M. A. H., van den Bergh, H., Rijlaarsdam, G., & Couzijn, M. (2001). Effective learning activities in observation tasks when learning to write and read argumentative texts. *European Journal of Psychology of Education*, 1, 33–48.
- Braaksma, M., Rijlaarsdam, G., van den Bergh, H. (2002). Observational learning and the effects of model-observer similarity. *Journal of Educational Psychology*, 2, 405-415. Retrieved April 7, 2010, from Research Library Core.
- Braaksma, M., Rijlaarsdam, G., van den Bergh, H., van Hout-Wolters, B. (2004). Observational Learning and Its Effects on the Orchestration of Writing Processes. *Cognition and Instruction*, 1, 1. Retrieved April 24, 2009, from Education Module database.
- Eger, A. (2007). Learning Language: Spelling still counts: Teachers stay tough in imparting grammar and spelling skills in an e-mail, instant-message world. *Knight Ridder Tribune Business News*, pp. 1. Retrieved April 11, 2010, from ABI/INFORM Dateline.
- Graham S., & Harris, K. R. (1994). The role and development of self regulation in the writing process. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 203–228). Hillsdale, NJ: Erlbaum.
- Kaiser Family Foundation. (2010). *Generation M2: Media in the Lives of 8- to 18-Year-Olds*. Retrieved April 5, 2010, from <http://www.kff.org>
- Kim, G., Park, S., & Oh, J. (2008). An examination of factors influencing consumer adoption of short message service (SMS). *Psychology & Marketing*, 25, 769-786. Retrieved from Communication & Mass Media Complete database.
- Lenhart, A., Arafet, S., Smith, A., & Macgill, A. R. (2008). Writing, Technology, and Teens. *Pew Internet and American Life Project*. Retrieved from <http://www.pewinternet.org>
- Leung, L. (2007). Unwillingness-to-communicate and college students' motives in SMS mobile messaging. *Telematics & Informatics*, 24, 115-129.

- Mindlin, A. (2008). Letting our fingers do the talking. *New York Times*, September 29.
- Jones, G. M., & Schieffelin, B. B. (2009). Talking Text and Talking Back: “My BFF Jill” from Boob Tube to YouTube. *Journal of Computer-Mediated Communication*, (14).
- Palmgreen, P., Wenner, L.A, and Rosengren, K.E. (1985) Uses and gratifications research: the past ten years. In: K.E. Rosengren, L.A. Wenner and P. Palmgreen, Editors, *Media Gratifications Research: Current Perspectives* (pp. 11-37). Beverly Hills, CA: Sage
- Schunk, D. H. (1991). *Learning theories: An educational perspective*. New York: Merrill.
- Schunk, D. H., & Hanson, A. R. (1985). Peer models: Influence on children’s self-efficacy and achievement. *Journal of Educational Psychology*, 77, 313–322.
- Sidener, J. (2003). THE GR8 IM DB8: Instant messaging applauded for getting students to write, but teachers fret over decline in basic skills. *The San Diego Union - Tribune*, pp.C1. Retrieved April 11, 2010, from ProQuest National Newspapers Premier.
- Tagliamonte, S., & Denis, D. (2008). Linguistic ruin? LOL! Instate messaging and teen language. *American Speech*, 83, 3. Retrieved April 1, 2010, from Research Library Core.
- Turner, K. (2009). Flipping the Switch: Code-Switching from Text Speak to Standard English. *English Journal*, 98, 60-65. Retrieved April 8, 2010, from Research Library Core.
- Zimmerman B., & Kitsantas, A. (2002). Acquiring writing revision and self-regulatory skill through observation and emulation. *Journal of Educational Psychology*, 94, 660-668. Retrieved April 7, 2010, from Research Library Core.

Appendix A: Complete listing of survey materials

Survey Materials

Questions regarding average media use

1. On average, how much free time do you have a day?
 _____ (in minutes)
2. On average, how much time do you spend studying or doing homework?
 _____ (in minutes)
3. On average, how much time do you spend watching television?
 _____ (in minutes)
4. On average, how much time do you spend listening to music (on the radio, iPod, mp3 player, etc.)?
 _____ (in minutes)
5. On average, how much time do you spend reading for pleasure?
 _____ (in minutes)
6. On average, how much time do you spend online?
 _____ (in minutes)
7. On average, how many text messages do you receive per day?
 _____ (please answer with a number)
8. On average, how many text messages do you send per day?
 _____ (please answer with a number)
9. On average, how much time do you spend instant messaging online each day?
 _____ (in minutes)
10. On average, how many different people do you instant message with each day?
 _____ (please answer with a number)

Questions regarding attitudes toward text messaging

* All questions measured through 1-5 Likert-type scale, strongly disagree to strongly agree

- I text because most of my friends do.
- I text because my parents do.

- I think texting is a fun thing to do.
- If I don't use text messaging, I won't be considered "cool" by my classmates.
- Texting helps me to stay connected.
- I primarily use text messaging to speak with my friends.
- I hate the way people spell when they text.
- Texting is a waste of my time.
- I use text messaging to talk with my parents.
- The speed of text messaging makes it convenient to use.

Questions regarding attitudes toward text messaging

*All questions measured through 1-5 Likert-type scale, strongly disagree to strongly agree

- The speed of instant messaging makes it convenient to use.
- I use instant messaging because it is a cool thing to do.
- I don't find instant messaging to be convenient.
- I use instant messaging to talk to my friends.
- Keeping in touch with my parents is why I use instant messaging.
- The way people spell when instant messaging is annoying.
- I don't find instant messaging to be very fun.
- I connected with others by using instant messaging.

Grammar of sent and received text messages self-report

*This format was used for three received text messages and three sent text messages

Pick the three (3) MOST RECENT text messages received from SEPARATE INDIVIDUALS.

Person #1:

What is this person's relationship to you? (eg. parent, friend, relative) _____

- How many times did the sender use an abbreviation (eg. lol for Laughing Out Loud)? _____
- How many times did the sender omit non-essential letters (eg. lv for love, wud for would)? _____
- How many times did the sender use a homophone or a word/number that sounds like another word (eg. b4 for before, 2morrow for tomorrow)? _____
- How many times did the sender use incorrect punctuation (eg. omitting periods at the end of a complete thought)? _____
- How many times did the sender use incorrect capitalization (eg. omitting capitals at the beginning of sentences or proper nouns)? _____

Grammar Assessment

PART 1:

Instructions: Please circle the word that makes the sentence correct.

1. There (is, are) two ways to make enemies.
2. One of the men forgot to bring (his, their) tools.
3. Gail and Sue (make, makes) friends easily.
4. The coach thought he had (tore, teared, torn) a ligament.
5. During the flood, we (dranked, drank, drunk, drunked) bottled water.
6. The boy called for help, and I (swum, have swam, swam) out to him.
7. Fortunately, Jim's name was (accepted, excepted) from the roster of those who would have to clean bathrooms because he was supposed to go downtown to (accept, except) a reward for the German Club.
8. I don't know how I could (lose, loose) such a big dress. It is so large that it is (lose, loose) on me when I wear it!
9. The man around the corner from the sandlots (come, comes) to our meetings.
10. The man and his little girls (was, were) not injured in the accident.

11. The pictures in this new magazine (shows, show) the rugged beauty of the West.
12. The orders from that company (is, are) on your desk there.
13. The (boys, boys', boy's, boys's) hats were lost in the water because they were careless in not tying them to the side of the boat.
14. (Its, It's, Its') an honor to accept the awards certificates and medals presented to the club.

Part 2: Please indicate whether the following sentences are punctuated correctly. Consider punctuation, capitalization, and possessives while analyzing.

15. Worried, and frayed, the old man paced the floor waiting for his daughter.

CORRECT

INCORRECT

16. The boy yelled, "Please help me"!

CORRECT

INCORRECT

17. She got out of the car, waved hello, and walked into the house.

CORRECT

INCORRECT

18. When Suzie arrived at the dance, no one else was there.

CORRECT

INCORRECT

19. Dad and I enjoyed our trip to new york city.

CORRECT

INCORRECT

20. The boy's mother picked him up from school.

CORRECT

INCORRECT

ANSWER KEY:

1. are
2. his
3. make
4. torn
5. drank
6. swam
7. excepted, accept

8. lose, loose
9. comes
10. were
11. show
12. are
13. boys'
14. it's
15. incorrect
16. incorrect
17. correct
18. correct
19. incorrect
20. correct

Academic Vita of Drew P. Cingel

Name: *Drew Patrick Cingel*

Address: 186 Hull Lane, Bellefonte, PA 16823

E-Mail Id: dpc5032

Education: The Pennsylvania State University, Schreyer Honors College

Majors:

2010, Bachelor of Arts with Honors from the College of Communications
Department of Film Video and Media Studies with a Media Effects option,
The Pennsylvania State University

2010, Bachelor of Arts from the College of Liberal Arts in Psychology, The
Pennsylvania State University

Honors:

College of Communications Department of Film-Video and Media Studies with
a Media Effects option

Thesis Title:

Technology, Tweens, and the Effect of Techspeak on Grammar Skills

Thesis Supervisor:

S. Shyam Sundar, Distinguished Professor of Communications

Work Experience

Date: 2008-2010

Title: Table Attendant/Server

Description:

Institution: Penn State Hospitality Services,
The Penn Stater Conference Center and Hotel

Supervisor's Name: Kimberly Snyder

Grants Received:

Undergraduate Psychophysiology Grant—gained experience in collecting and
analyzing a variety of psychophysiological data, Department of Film/Video
and Media Studies, Media Effects Research Laboratory, The Pennsylvania
State University, 2009

The Pennsylvania State University, 7-time College of Communications Dean's
List designee, 2006-2009

The Pennsylvania State University, 4-year Schreyer Honors College Academic
Excellence Scholarship Recipient, 2006-2010

The Pennsylvania State University, 1-year Lawrence G. and Ellen M. Foster Merit
Scholarship recipient, 2006-2007

Awards:

Research selected to represent the College of Communications at the Schreyer
Honors College Undergraduate Research Exhibition, 2010
Nominated for the Douglas & Regina Evans Award for Research Achievement,
bestowed on the Schreyer Scholar who has accomplished a single,
extraordinary research achievement.

Professional Memberships:

National Quill and Scroll Society

Publications:

Once completed, I plan to submit my honors thesis for publication.

Presentations:

Present my thesis at the Undergraduate Research Exhibition, 2010

Community Service Involvement:

Volunteer for Special Olympic activities

Language Proficiency:

English and Spanish