THE FREQUENCY OF TEXTING ON MIDDLE SCHOOL STUDENTS' WRITING ACHIEVEMENT

by

Jennifer French

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this correlational study was to discover the impact of texting on writing achievement for middle school students at Highland Middle School in Anderson, Indiana. The theory guiding this study is Vygotsky's Social Cognitive Theory (Newman & Holzman, 2013) as it explains that learning is influenced by one's social environment. The data that will be collected consists of the scores of the writing portion of the 2014-2015 state standardized test (ISTEP), a student survey answering questions about texting practices, and student status information on Free and Reduced Meals. The multiple regression analysis will be used to analyze this data because as inferential statistics it can be used to predict whether this information can apply to other future populations.

Texting is a common practice and so is utilizing textspeak, (the digital language developed in order to make written communication on cellular devices more efficient). Middle school students represent the largest demographic of frequent texters, therefore one may assume this practice has the potential to influence daily writing habits throughout one's lifetime. This study must be conducted in order to determine how textspeak is impacting the evolution of language and document the changes in language on education and the world as a whole. This quantitative, correlational study analyzes Indiana Statewide Educational Progress, or ISTEP, writing scores and the effects of frequent texting of middle school students. The middle school has a population of approximately 1500 students and the sample will be selected by meeting the following requirements: any sixth through eighth grader who has a personal cellular device and who has returned a parent consent form.

This study seeks to answer the questions: Is there a relationship between frequency of texting and adolescent writing achievement? and Is there a difference in the impact of texting between adolescents eligible for Free and Reduced Meals and those adolescents who are not eligible?

Keywords: textisms, textspeak, struggling writers, technology, literacy

Dedication

Who would have thought I would spend 21 years going to school? Not my mom and dad, because they physically dragged me there the first twelve. I remember being six years old, holding Mrs. May's hand, tears streaming down my face because I wanted mom to come to first grade with me. When I was eight years old, I recall being horizontal, while I clung to the door jamb and dad pulled me by my ankles. It was the first day of third grade and I refused to go. Sorry guys. I didn't make it easy on you. I just knew the best place to be was with you.

I would like to take this opportunity to put in to print, how incredible my family is. This degree and this text have all of your names on it, because it was a team effort. Trent, you made everything possible by being the one constant in a chaotic family schedule of six. Because of you, I have been able to make my professional and academic dreams possible. You are outstanding. Samuel, Nathan, Hannah, and Jackson. In my first class at Liberty University Dr. Ellen Black said, "This degree will not only open doors for you, it will open doors for your entire family." I pray that is true. You are my reason to breathe, but I don't care if you don't like school. You are going.

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To my colleagues and master teachers, Jennifer Morgan and Melissa Treadway, who have been the most loving editors and supportive audience. I would also like to thank Denise Harvey, my "Data Diva" for all of her hours of help sifting through test scores, and spreadsheets. That's true friendship.

Most significantly, I'd like to acknowledge my God, who chooses the foolish things of this world to shame the wise, and the weak things of the world to shame the strong. (1 Corinthians 1:27)

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Variable	*n*	%
Gender		
Female	38	60.3
Male	25	39.7
Grade		
6th	30	47.6
7th	15	23.8
8th	18	28.6
Free/Reduced Meal Eligibility		
Free	44	69.8
Reduced	5	7.9
Paid	14	22.2
Pass/Fail Rate		
High Achievement Pass	5	7.9
Pass	31	49.2
Fail	27	42.9

Table 2
Means and Standard Deviations of Continuous Variables

Variable	Min.	Max.	*M*	*SD*
2016 ISTEP Performance Score	392.0	693.0	503.16	53.64
Text Messages Sent (in past 7 days)	0	1022	119.56	204.68

Table 3
Results of the Regression with Text Message Frequency Predicting ISTEP Performance Scores

Variable	*B*	*SE*	*β*	*t*	*p*
Text Message Frequency	0.05	0.03	.17	1.36	.180

Note. $F(1, 61) = 1.84$, $p = .180$.

Table 4
Results of the Regression with Text Message Frequency and Free/Reduced Meals Predicting ISTEP Performance Scores

Variable	*B*	*SE*	*β*	*t*	*p*
Text Message Frequency	0.04	0.03	.16	1.21	.233
Free/Reduced Meal Eligibility	12.24	16.44	.10	.744	.460

Note. $F(2, 60) = 1.19$, $p = .311$.

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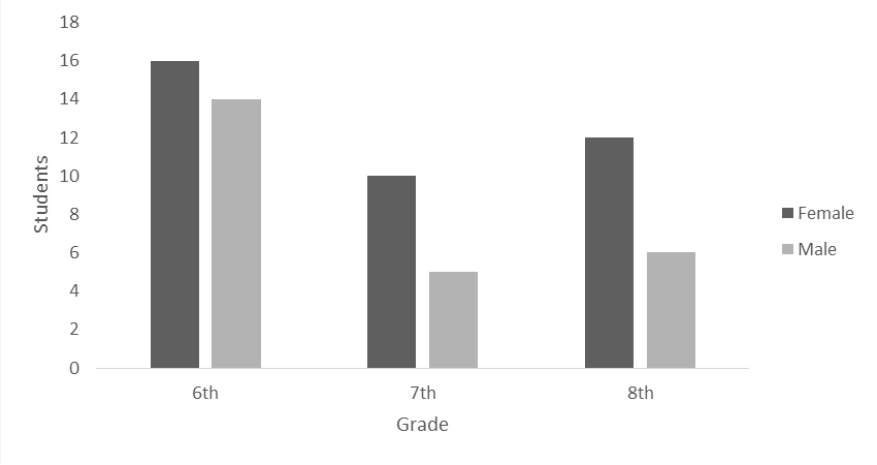

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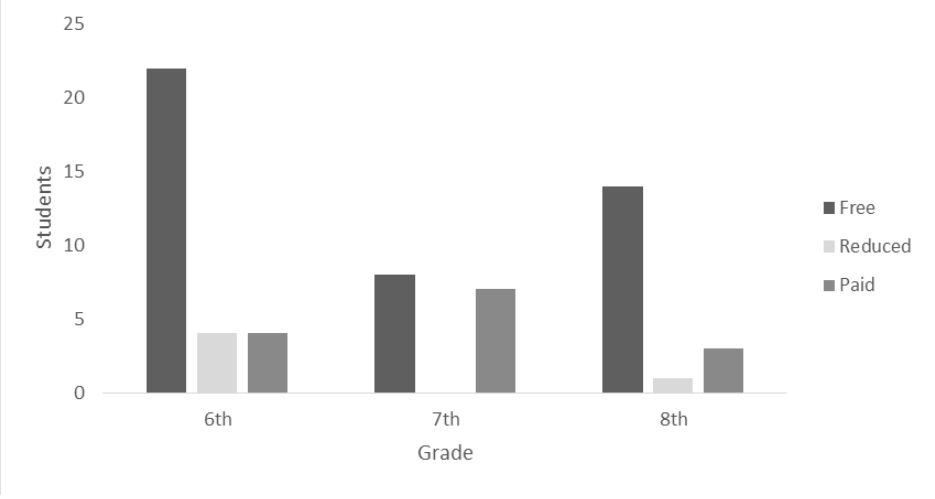

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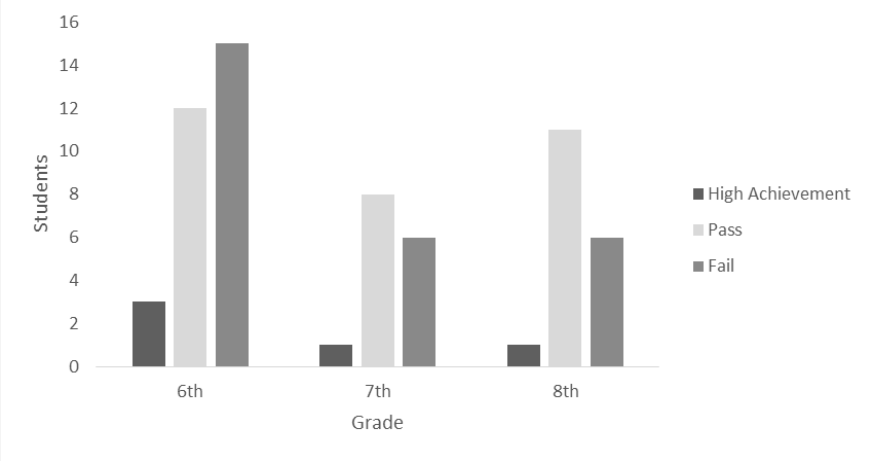

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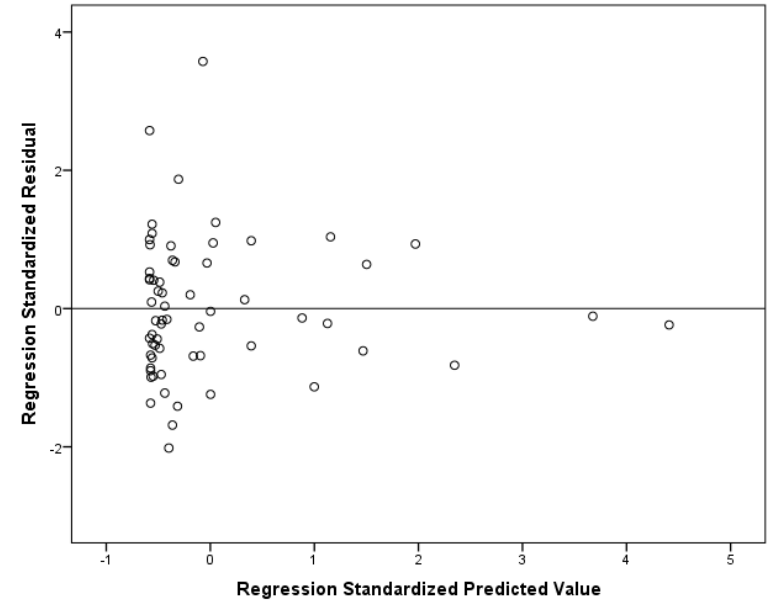

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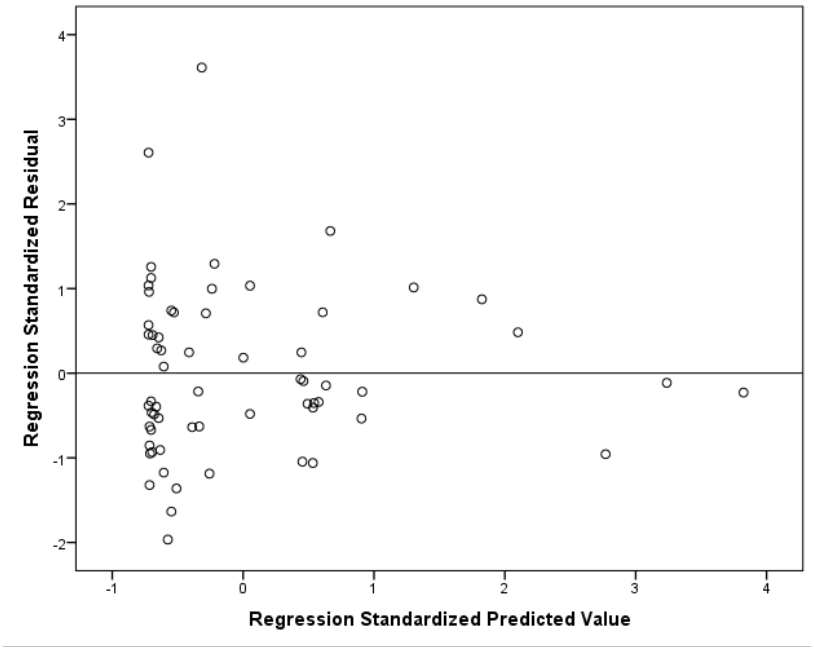

List of Abbreviations

Pertinent definitions to the study are described below.

1. *C.S. (Code-switching)*- the act of switching back and forth from academic language and digital language (Wheeler & Swords, 2006).
2. *CMD*- computer-mediated discourse, any human communication that occurs through two or more electronic devices (Hedrick, 2008, p. 61).
3. *D.I. (Digital immigrant)*- one who develops an understanding of computer technology later in life (Prensky, 2001).
4. *D.L. (Digital literacy)*- the ability to find, evaluate, utilize, share, and create content using information technologies and the Internet (https://digitalliteracy.cornell.edu). Digital writing compositions can include textual forms such as alphabetic print, photographs, charts, videos, music, narration, sound effects, or any other media that can be created, remixed and distributed online (Hawley Turner & Hicks, 2011).
5. *ISTEP*- The Indiana Statewide Test for Educational Progress; the state standardized test created by McGraw Hill.
6. *S.E. (Standard English)*- The formal use of the English language in which syntax and vocabulary is of an academic nature (Drouin, 2011).

CHAPTER ONE: INTRODUCTION

Background

Gone is the common skill of composing lengthy correspondence. Today the key is brevity and the ability to create prose in 140 characters or less. A rapidly evolving, technologically based society has led to the creation of an alternate efficient language: text messaging. How did textspeak popularize so rapidly? Vygotsky's Social Cognitive Theory describes how children learn as a social activity based on their current environment (Ormrod, 2011; Forrester, 2013; Daniels, 2005). This practice has permeated social groups around the world. Past studies on texting have been conducted in Pakistan (Yousaf & Zhmed, 2013), Canada (Spatafora, 2012), England (Plester, Wood & Bell, 2008), Germany (Androutsopoulos, 2008), Africa (Deumert & Lexander, 2013), as well as inner cities in the United States (Wheeler & Swords, 2012).

Text messaging is a social practice between family, friends, and professional colleagues. Moffet and Gibson developed the theory that, "choices are determined by one's sense of the relation of speaker, subject, and audience" (Flower & Hayes, 1981, p. 365). Meaning, an individual will write according to context and will adapt tone and formality depending upon the situation.

The growth of interactive media, including cell phones, has altered the way humans communicate. Short-cuts have been developed in order to create efficient communication. Those short-cuts consist of emoticons, acronyms, shortened misspellings, and the avoidance of grammar. Electronic exchange, text messaging, is the most popular form of communication for adolescents (Varnhagen et al., 2009). American adolescents between the ages of 13 and 17 send

an average of 3,364 text messages each month, which is more than any other age group (Cingel & Sundar, 2012). The only activity more ubiquitous for children other than text messaging is playing video games and watching television (Kemp, Wood, & Waldron, 2014). This generation has earned the title "Digital Natives" because they are the first generation to be "fluent in the language that rules computers, videos games, and the Internet" (Prensky, 2001, p. 4). Digital language is the primary way in which adolescents communicate so it is reasonable to assume that it will often appear in their academic writing (Lewin, 2008).

Both teachers and parents express worry about the usage of texting on a child's writing abilities (Cingel & Sundar, 2012). In a survey conducted, 71% of teachers fear that technology's impact has negatively affected students' attention span, and diluting writing skills. Additionally, 81% of middle school teachers believe that texting has the most negative influence on student achievement, specifically writing skills (Common Sense Media, 2012). One teacher stated, "Students now write papers like they are texting and do not really consider grammar and spelling before turning in compositions" (CSM, 2012, p. 26). A report by the Pew Internet and American Life Project reveals that children's advocates along with educators are concerned that digital communications are degrading the quality of writing American students produce (Hawley Turner, 2009).

Is there any merit to parents' and educators' concerns? Plester, Woods, and Joshi (2009) found that children who have a strong ability to translate textisms to Standard English and utilize a higher number of "textisms" in a single text message score greater in phonological awareness, verbal reasoning, vocabulary, spelling, reading, and writing. They also concluded that the use of contractions, leaving the *g* out of *ing* endings, using emoticons, symbols, letter/number

homophones (gr8 for great), and exercising non-conventional spelling contribute to greater reading scores. Overall, the results typically indicate texting as a positive influence on literacy for 10-12 year olds, concluding that students must have a thorough understanding of a language in order to dissect and manipulate it effectively. According to Bloom's Taxonomy, the highest order of thinking is having the ability to create (Huitt, 2011). Essentially, textspeak is a new language constructed by its authors to meet their communication needs. In *Txting: The Gr8 Db8,* Crystal (2008) states:

> "I do not see how texting could be a significant factor when discussing children who have real problems with literacy. If you have difficulty with reading and writing, you are hardly going to be predisposed to use a technology that demands sophisticated abilities in reading and writing. And if you do start to text, I would expect the additional experience of writing to be a help, rather than a hindrance." (p. 157).

Despite any positive results texting may have had on literacy and reading fluency, the pervading perception is that texting is damaging the English language, as supported in Thurlow's 2006 compilation of 100 articles on the topic. Further supported by Jacquie Ream's work (2005), "These kids aren't learning to spell. Kids are typing shorthand jargon that isn't even a complete thought" (Ream, 2005, p.8).

Shafie, Azida, & Osman (2010) also note spelling and writing as the chief struggle for second language learners. They examined Malaysian college students and found that using a high frequency of textisms made it difficult for the participants to recall correct spellings. Drouin's (2011) research on the use of textese, or textspeak, on college students' literacy skills mentions that seeing a word misspelled even once makes it more difficult to recall the correct spelling.

For example, seeing the common textism “prolly” on a regular basis will make it challenging when trying to remember the correct spelling “probably”. This is particularly difficult when the correctly spelled word has a concise and phonologically correct abbreviation (Drouin, 2011).

However, the research on inventive spelling, the process of spelling using the limited knowledge of phonetics that one may have, has shown the positive impact it has on student writing. Kolodziej and Columba (2003) describe the process of inventive spelling as developmental, explaining that a child moves through various stages of spelling patterns based on their cognitive development. These stages include Prephonetic, which consists of symbols and meaning, but not letter representation; Semi-Phonetic, consisting of beginning sounds; Phonetic, where each sound of the word is represented by a letter even though it may not be accurate; Transitional, spelling patterns are evident; and Conventional, describing the correct way to spell. Furthermore, use of inventive spelling has shown a direct positive correlation between academic achievement in reading and writing (Kolodziej & Columba, 2003).

The positives and negatives of texting may also be viewed differently depending upon one’s attitude of technology in general. Those who find technology essential to daily living and foundational to a successful career are more likely to see the creativity, advantages, and benefits of engaging in textspeak. Whereas, those more resistant to technology tend to focus on the negative aspects of texting such as the shifts in language from a formal register to a casual register (Wilde, 2008). The statistic that only 16% of teachers consider themselves “tech savvy” may also attribute to the disproportionately negative view of students’ use of textspeak (CSM, 2012).

"The Changing Discourse of Language Study" describes written language as "living and breathing" (Wilson, 2001, p. 31). Language scholars understand changes in language are expected. Wilson calls educators to view language as a "process of trial and error" and to see all speakers as language learners. Regardless of age and experience, everyone continues to "learn new vocabulary, develops dialect and slang, and learns new language rules dependent upon social setting" (Wilson, 2001, p.35). Educators should embrace any changes that evolve in language and expand curriculum to explore the various hidden rules and structure of the informal English language that has always existed but has never been validated (Wilson, 2005).

Shirley Brice Heath's work, *Ways with Words: language, life, and work in communities and classrooms,* (1999) is an extended ethnographic study, which explores the impact of culture on language development, and language development's influence on communication problems in school and work. Heath asserts that all professional and social discourse is steeped in personal culture. Identifying the cultural influences of communication and learning the hidden rules of language will determine an individual's success in the world. One could also extend this work to the concept and use of textspeak as one mode of cultural discourse, which is a mode that is birthed out of modern culture, shared between peer groups, and inadvertently blends into all other discourse.

Educators are focused on fostering a capacity for social change and creating "classrooms as spaces where they can promote equity and build civic participation among their adolescent learners" (Hawley Turner & Hicks, 2011, p. 60). The traditional teacher that approaches curriculum as a task list of items to complete within one school year is not an educator who is equipped to "bridge the digital divide" (Hawley Turner & Hicks, p. 60). Kristen Hawley Turner

and Troy Hicks state, “In the spirit of social justice, we believe that digital literacy is an emerging human right and that it is vital for community development and citizenship” (p. 62). They assert that teenagers must become digital writers and citizens so that they can contribute to the larger society of which they are part.

Problem Statement

Is texting helpful or harmful to students’ academic writing abilities? Studies continue to produce conflicting results. Drouin (2011) found a positive relationship between texting and literacy while Kemp (2010) found texting to have no relationship to literacy. However Plester, Wood & Bell, (2008) submit that texting has a negative relationship with literacy. These are just a few of the studies that have generated conflicting results. Some differences may have occurred due to extraneous factors such as cultural or sample variations (Drouin & Driver, 2014), but further research should be done to clarify the results and put an end to the debate.

Middle school students represent the largest demographic of frequent texters, therefore one may assume this practice has the potential to influence daily writing habits. According to Education Digest (2013), among the top complaints of English teachers is the decline of writing skills. However, there is no quantitative evidence to support their claim and the question of how texting may impact a developing writer has yet to be answered. The consistent use of technology has the capability of increasing student learning, and it also has the possibility of creating a generation of poor writers, which will shape the future of the individual, as well as radically transform the English language.

Is student writing impacted by texting habits? It is vital to know the answer in order to evaluate how to improve our students’ academic writing performance, which is now consistently

evaluated through the measure of standardized testing. The problem is the frequency of texting may be impacting writing achievement on middle school students' standardized tests.

Purpose Statement

The purpose of this quantitative correlative research study is to investigate the affect of texting on middle school students' formal writing achievement. The results from the study will inform parents, students, and educators of Highland Middle School of the impacts of texting on middle school students' formal writing achievement. This information can provide insight based on the number of texts, which are sent during a specified time period, by indicating whether or not frequency of texting is negatively shaping students' formal writing skills and to the degree to which it may be affected. Other factors may be further influencing the impacts of texting, such as student's IQ level or socio-economic status. If the affects of texting are better understood, both educators and parents could better guide students' texting habits and make informed decisions of frequency and methods. Using the results from this study, assumptions may be made about the overall student population of Highland Middle School based on the results of those participating. The study will further extend the research that has been completed on the overall effects of texting on the evolution of the English language.

Significance of Study

This study can provide insight to administrators, curriculum developers, teachers, and parents about the magnitude of the effects textspeak may be having on today's adolescents. The data has produced conflicting views on the effects of frequent texting. The forerunner on texting and language, David Crystal, began his research in 2008. He began the assertion that all texting benefits learners and he praises participants for their ability to manipulate written language.

However, Dansieh (2011) maintains that the negative effects of texting on English Language Learners' formal writing skills are detrimental. Parents and teachers claim to see a decline in the overall formality of writing in adolescents and are concerned for students' future success in life and higher academia (CSM, 2012). Rosen, Carrier, & Cheever (2013) found that students spend less time focused on academic tasks when mobile phones are present. The findings of this study may potentially aid the following:

If findings prove texting to be harmful to student academic writing achievement, this information may guide educational leaders on the creation of specific writing interventions for frequent texters. Response to Intervention (RTI) may extend to include specific strategies helping students translate textese, or the informal language of texting, to formal Standard English. Educational applications may be created to provide academic or formal suggestions for students casual or textspeak language.

The findings may also help to determine whether frequent texting has more of an impact on students who come from a low socio-economic background by evaluating the students who qualify for Free and Reduced Meals. As students from lower economic levels tend to struggle on standardized tests more so than middle class students (Hair, Hanson, Wolfe & Pollak, 2012) the study could provide one more piece of evidence that current standardized testing practices aren't meeting student needs.

The study's outcomes may enlighten classroom teachers' English/Language Arts pedagogy by furthering their understanding of language and writing acquisition and practice. If teachers understand the degree to which texting may be influencing their students' writing practices they

could aid students in becoming aware of the influence of textspeak and could provide more specific guided instruction on the differences of formal and digital language.

The study has the potential to guide school policy on encouraging or discouraging the use of cell phones in the classroom. Schools are divided on their cell phone policies. Some schools embrace cellular devices as "bring your own device" or BYOD as a researching resource. While others view cell phones as contraband which distracts students from effective learning. The findings of this study could provide an understanding and therefore a cohesive policy for the use of cell phones in schools nationwide.

Results could guide creators of assessments in formatting written portions of high stakes tests. Currently, students are scored on grammar, spelling, and capitalization in every written response, regardless of content area. Is there a possible way to allow a student to convey their proficiency of a content area standard even if they are not proficient writers?

Finally, the study could provide further documentation of the evolution of the modern Standard English language. While this is continually visual in popular literature of the time, it could also act as a benchmark of where society and education are in regards to writing and spelling during the current period of time.

Research Questions

RQ1: Is there a relationship between frequency of texting and adolescent writing achievement?

RQ2: Is there a difference in the impact of texting between adolescents eligible for Free and Reduced Meals and those adolescents who are not eligible?

Null Hypotheses

$H_0$1: There is no statistically significant correlation between the frequency of text messages sent and the writing achievement of middle school students.

$H_0$2: There is no statistically significant difference in the impact of texting on middle school students eligible for Free and Reduced Meals and those students who are not eligible.

Definitions

Pertinent definitions to the study are described below.

7. *Code-switching*- the act of switching back and forth from academic language and digital language (Wheeler & Swords, 2006).
8. *CMD*- computer-mediated discourse, any human communication that occurs through two or more electronic devices (Hedrick, 2008, p. 61).
9. *Digital immigrant*- one who develops an understanding of computer technology later in life (Prensky, 2001).
10. *Digital literacy*- the ability to find, evaluate, utilize, share, and create content using information technologies and the Internet (https://digitalliteracy.cornell.edu). Digital writing compositions can include textual forms such as alphabetic print, photographs, charts, videos, music, narration, sound effects, or any other media that can be created, remixed and distributed online (Hawley Turner & Hicks, 2011).
11. *Digital native*- "one who is fluent in the language that rules computers, video games, and the Internet. They write, and perhaps even think in this alternate speech" (Hawley Turner, 2009, p. 60).

12. *Dyslexia*- a specific learning disability characterized by "difficulties in learning to read despite conventional education, adequate intelligence, and sociocultural opportunity" including confusion between letters and words, reversal of letters, problems with articulation of words, difficulty in segmenting syllables, a non-fluid and laborious reading (Simoes-Perlant, Thibault, Lanchantin, Combes, Volckaert-Legrier & Largy, 2012, p. 67).
13. *Dysorthographia*- difficulty in writing, displaying symptoms of poor spelling, grammar, slowness, reversal of letters, syllables or omissions and additions (The International Dyslexia Association, IDA).
14. *ISTEP*- The Indiana Statewide Test for Educational Progress; the state standardized test created by McGraw Hill.
15. *"Linguistic Whateverism"*- Knowing the expectations of formal writing but having an attitude of carelessness to perform to academic expectations (Spatafora, 2008).
16. *Principle of Lease Effort*- This principle states that all language evolves with the purpose of efficiency in communication (Danesi, 2009).
17. *Standard English*- The formal use of the English language in which syntax and vocabulary is of an academic nature (Drouin, 2011).
18. *Textspeak/textisms/textese/digitalk*- all terms refer to the abbreviated, casual, non-grammatical language used when communicating during text messages, consisting of colloquialisms, abbreviations, acronyms, symbols, word adaptations, and slang (Durkin, Conti-Ramsdent & Walker, 2011).

CHAPTER TWO: LITERATURE REVIEW

Introduction

A variety of research has been conducted on texting's impact on European students, and American college students, with a focus on literacy and spelling. Yet, little research has been conducted on how textspeak affects writing performance in American middle school students. While the consistent use of technology has the capability of increasing student learning, it also has the possibility of creating a generation of poor writers, which will shape the future of the individual, as well as transform the English language. One report suggests that before students can partake in the "new media literacies" they must first be able to read and write," and "we cannot push aside old skills to make room for the new;" (Hicks & Hawley Turner, 2013, p. 58) the new skills must be an addition, not a replacement.

In 1930 Lev Vygotsky proclaimed that, "writing has occupied too narrow a place in school practice as compared to the enormous role that it plays in children's cultural development. Vygotsky's statement is truer now than it was in 1930. The cultural writing students are developing overshadows their formal academic training (Vygotsky, 1930, p.1). Therefore, it is imperative to uncover the impacts of the cultural practice of texting on middle school students'. Does the frequency of texting impact writing achievement in middle school students?

Theoretical Framework

The assumption of the study is that students who use textspeak, an informal version of the English language, will do poorly when called upon to write in a formal situation, such as required on a standardized test. In order to produce a compelling study, emerging data will shape the research process and guide the research questions.

Social Cognitive theory. Vygotsky's Social Cognitive theory describes how children learn as a social activity, and those activities are determined by the child's environment. An individual learns from his or her environment and then internalizes the behavior for the purpose of assimilating to their culture (Ormrod, 2011). This theory supports the premise that texting is a method of communicating with others for a social purpose by utilizing a practice that is learned within one's culture.

Texting is a social experience. As in Vygotsky's Social Cognitive theory, the more submerged in the texting experience, the more one will learn new words, phrases and shortcuts to use in order to communicate (Ormrod, 2011). It becomes shared language between a similar culture (Forrester, 2013). Most educators use the Social Cognitive theory to support small the strategy of small group instruction, however, it encompasses more than just collaborative learning. Even when an individual is alone, their thinking involves others and their thoughts are cultivated by their surroundings (Smagorinsky, 2007).

Lev Vygotsky's 1930 work, *Mind and Society*, examines the pre-history of written language:

> "Unlike the teaching of spoken language, into which children grow of their own accord, the teaching of written language is based on artificial training. Such training requires an enormous amount of attention and effort on the part of teacher and pupil and thus becomes something self-contained, relegating living written language to the background. Instead of being founded on the needs of children as they naturally develop and on their own activity, writing is given to them from without, from the teacher's hands. This situation recalls the development of a technical skill such as piano-playing: the pupil

> develops finger dexterity and learns to strike the keys while reading music, but he is no way involved in the essence of the music itself... A second conclusion, then, is that writing should be meaningful for children, that an intrinsic need should be aroused in them, and that writing should be incorporated into a task that is necessary and relevant for life. Only then can we be certain that it will develop not as a mater of hand and finger habits but as a really new and complex form of speech" (Vygotsky, 1930, p. 15).

Writing has been traditionally taught as an outside force. Students are often asked to write in response to artificial situations where students may have difficulty engaging with the assignment or task, instead of approaching the teaching of writing similarly to language acquisition, which is based on need and interest.

Schema theory. Schema theory, developed by Jean Piaget, applies to the concept of this study because it examines how new ideas are connected to current thinking. This is especially visible concerning language concepts. The purpose of textspeak is to communicate more efficiently. In textspeak, words that may take ten letters to spell, (current knowledge), must be abbreviated with a symbol or only a few letters to communicate the same meaning (new knowledge). By the time a student reaches adolescence they should have learned traditional spelling and writing structure through their elementary language arts education. For most, knowledge of spelling and writing structure was formed prior to adopting textspeak. Acquiring textspeak broadens an individual's language experience (Ormrod, 2011). If an adolescent begins utilizing textspeak before having a concrete understanding of standard English, it will all be categorized as new knowledge. Students could easily retrieve either information in a writing task and find it difficult to differentiate the appropriate form. Students who are writing in an

academic setting may struggle with writing in context and whether to use standard English or textspeak.

Review of Literature

Defining Textspeak in Literacy

American adolescents between the ages of 13 and 17 send an average of 3,364 text messages each month, which is more than any other age group (Cingel & Sundar, 2012). This doubles the amount of text messages sent by 18-24 year olds, which are 1,640. It is becoming the preferred method of communication exhibited by 200,000 text messages sent per second across the globe (Grace, Kemp, Martin, & Parrila, 2013). In a study by Common Sense Media (2012) entitled "Children, Teens, and Entertainment Media: The View from the Classroom", it is noted that children and teens spend more time with media, like listening to music and watching television, interacting with social media, and playing video games more than any other activity besides sleeping; often using several modes of media simultaneously. This amount has doubled between 1999 and 2009. Children between the ages of 8-18 spend more than 7.5 hours a day interacting with media, which is more time than they spend in school. Even children between the ages of 5 and 8 spend 168 hours a year more with media than with school (CSM, 2012).

The definition of literacy is continually evolving; is no longer limited to reading and writing traditional text. Visual literacy is just one of the examples of evolved literacy definitions. It encompasses interpreting images, symbols, graphs, and videos embedded in text. The reader must simultaneously process a variety of sources in order to gather meaning, resulting in multimodal literacy. Reading legal documents, instruction manuals, newspapers, or gossip magazines require different reading skill sets (Hicks & Hawley Turner, 2011). Multimodal

literacy represents a complex form of reading, understanding, and language (Gee, 2003). This multimodal literacy also encompasses textspeak.

What is textspeak? Durkin, Conti-Ramsdent & Walker (2011) describe texting as its own language; a language consisting of colloquialisms, abbreviations, acronyms, symbols, word adaptations, and slang. This texting language, also known as textese, textspeak, textism, or digital language, is grounded in rules of the Standard English language, but is more similar to a spoken, casual language (Durkin et al., 2012). Researchers from the Psychology Department at various Canadian universities describe it is an interactive form of communication. This communication takes place through electronic technologies such as text messaging, email, instant messaging, and online discussion forums. In order to "speed up the communication exchange communicators have developed short-cuts" (Varnhagen, McFall, Pugh, Routledge, Sumida-MacDonald, & Kwong, 2009) consisting of emoticons, acronyms, shortened misspellings, and avoidance of grammar. These short cuts became necessary due to the limitations of earlier technology.

Varnhagen (2009) confirms that electronic exchange is the most popular form of communication for adolescents. Examples of some of the most utilized phrases are: brb, meaning be right back; ttyl, for talk to you later; lol, signifying laugh out loud. Emoticons, graphics depicting various emotions, are also commonly used to express feelings rather than writing a reaction.

Textspeak is not limited to a few localized, quirky acronyms; sociolinguistics accepts textspeak as its own genre of reading and writing. Amy Devitt (1993) explains that in order to understand readers and writers, one must have a grasp of genre.

> Knowing the genre … means knowing such things as appropriate subject matter, level of detail, tone, and approach as well as the usual layout and organization … Understanding writing processes, then, must include understanding generic goals: what they are – the historical, community, and rhetorical forces that shape them – how writers learn them, how writers use them (p. 577).

The texting language has become so ubiquitous that phrases are being included in dictionaries as an accepted word of the English language (Varnhagen et al., 2009). Text dictionaries, which translate textspeak into Standard English are common tools found online and in bookstores. The pervasiveness of texting among adolescents has even earned the term "youth code" because it is the primary language of America's modern youth (Durken et al., 2011).

Danesi (2009) conducted an investigation to find the reason behind a changing English language system. Danesi looks at the current trends of change in cyber language and applies the Principle of Least Effort (Danesi, 2009). This principle states that all language evolves with the purpose of efficiency in communication. Textspeak is a product of striving for a more simplistic form of communication brought on by the invention of cellular telephone messaging. The Principle of Least Effort provides a framework for understanding the origination of textspeak. Textspeak omits grammar and punctuation, and uses acronyms and simplistic spelling. It creates a more concise language, which is more efficient when keying the words on a mobile device. When texting first began each key was pressed several times to retrieve the needed alphabet letter. As technology has advanced tools like autocorrect will assume the word the author is writing and complete the spelling. Danesi (2009) points to this goal of efficiency, which simplifies spelling, as the factor, which is altering the written language. "Lazy language" (Wood

et al., 2014, pg. 427) may have applied more specifically to earlier research on text language. More recent uses of text language could be tied to the technology of cell phones, environmental factors, such as common peer language, and the purpose of self-expression. More research must be done to determine whether textese is due to lack of understanding of Standard English or other environmental factors.

Stenography, commonly known as shorthand, was also invented to expedite communication. Stenography uses the same approach to communication as texting: symbols, abbreviations, and stenography is based on phonetic spelling (Russon, n.d.). Shorthand dates back to ancient Greece but most widely became used around 63bc in the Roman Empire. Over thousands of years versions of shorthand have come and gone and have been translated into almost every language. In 1837 an educator by the name of Sir Isaac Pitman developed the most widely used shorthand system based on omitting vowels; the same strategy used most in textspeak (Russon, n.d.). Stenography continued to evolve and in 1893 schools began teaching shorthand to students as a necessary business skill (Russon, n.d.).

Decades later Speedwriting shorthand was invented as a system for typewriter use. Sixty rules are applied to abbreviate more than 20,000 words (Russon, n.d.). Comparably there are 227 pages in the "online textlingo dictionary" listing the most commonly used textspeak abbreviations (www.netlingo.com, retrieved: June 18, 2015).

In 1906 a Stenograph machine was invented and used to aid court reporters. A Stenotype machine was also invented and used to record speech. Both machines have "keyboards of 22 keys and the operator uses all fingers and both thumbs, so that any number of keys can be struck

simultaneously" (Russon, n.d, p. 4). Text messaging employs both the elements used by these machines; typing with multiple fingers and thumbs, and also mimics a voice-to-text feature.

In 1985 a member of the Global System for Mobile Communication (GSM) by the name of Friedhelm Hillebrand wanted to develop a text messaging system to use with the car phones. The limited bandwidth would only allow for short messages (Milian, 2009). After experimenting GSM found that most messages could be effectively communicated in 160 characters per message, which was similar to the length of a standard postcard. In 2014, efficiency continues to evolve and major social media messaging platforms are limited to 140 characters per message (Dixon, 2011).

What other connections can be made between shorthand and texting? Nearly 300 research studies have been done on the reading and writing of shorthand. The summary of findings concludes that: "good readers of shorthand were also good readers of print," (Anderson, 1981, par. 3) and that habits formed early during the learning of shorthand persisted throughout the course of using it (Anderson, 1981). This mirrors Bloom's findings (2010) that there was an increase in the reading ability of children when they began texting, concluding that an individual must have a solid understanding of language in order to use an unconventional form of it.

Beyond the convenience of a more efficient communication, researchers may have discovered another motive for utilizing textspeak- expression of emotion. Seventy-percent of communication is non-verbal or body language (Adler & Proctor, 2014). When communicating by electronic device, one lacks the ability to express tone, attitude, or emotion. Textisms aid in providing this missing piece in dialogue. For instance, "lol" substitutes what would typically be communicated in person through tone of voice or gesture. As Wood, Kemp, & Waldron (2014)

state, substitutions "might have more to do with one's tendency to feel or to display emotion and affection, than with one's grammatical or orthographic prowess" (Wood et al., 2014, p. 427). This would indicate that the use of text language is not due to grammatical ignorance or literacy weakness, but a desire to articulate one's electronic correspondence more articulately.

Textspeak has evolved as cellular devices have improved. Smartphones, with self-correcting technology, eliminate some errors but may cause replacement errors. Naturalistic research studies have found that texting mistakes may be inconsistent, even within a single text message. Auto-correction and personal expression may account for the inconsistent patterns found in the data (Grace et al., 2012).

Deumert and Lexander (2013) explain textspeak as a "grassroots literacy practice" which is "deeply localized" from region to region (p. 522). While the textism phrases are now widely recognized, they are not new inventions. In 2000, Jannis Androutsopoulos identified many of the misspellings and abbreviations to have originated in such places as graffiti and advertising. Mackenzie-Hoy subscribes that texting has been around for years and references Morse Code as the prime historical example. "The simple fact is this: when the transmission of text takes time…then text abbreviations become common" (Mackenzie-Hoy, 2006, p.1). In "Textese: a Literacy Teacher's Nightmare or Benjamin Franklin's Dream Come True," (2008) Hedrick discusses Franklin's and Webster's desire to simplify the spelling system along with the establishment of the Simplified Spelling Society, which still exists today.

College and University Students

The bulk of research regarding texting and language has been conducted using college and university undergraduate student participants. While studies focus on the effects of texting

and writing habits, research has also been done on how texting can support undergraduates in transitioning to university life. The shift from secondary education to college life requires students to quickly develop self-motivation for learning and independent study habits (Prescott & Simpson, 2004). Freshman especially struggle with adapting to the rigorous academic demands and fault isolation as a major factor in their lack of achievement (Lethwood, 2001). Texting has acted as bridge to receiving necessary information about campus activities, study groups, even texting questions to tutors in order to receive a quick response. Text messaging is replacing email because of the faster response time (Griffiths et al., 2005). Many universities have adopted Student Messenger, a program that sends out mass text messages. Administrators can send messages about logistical matters, personal and peer tutor groups can send a receive messages, and mass social messages can be sent. Text messaging is also identified as a key element in university students' ability to maintain a close support system, whether family across country or peers on campus (Harley, Winn, Pemberton, & Wilcox, 2007).

Past studies have discovered that for the most part American and foreign college students know to utilize textspeak in appropriate contexts, for instance, in social formats while they refrain from using texting language in professional or academic settings. In an Australian study, De Jonge and Kemp (2010) undergraduate students applied textisms 13-16% of the time. The majority of textisms employed were categorized as: missing capitalization and punctuation.

Seeing a word misspelled one time makes it difficult for an adult to recall the correct spelling. Being consistently exposed to common textisms is especially challenging when recalling standard spellings. This is particularly difficult when the correctly spelled word has a concise and phonological abbreviation (Drouin, 2011). Drouin's study focused on adults' ability

to retain correctly spelled and misspelled words. American adults are considered to have a stable understanding of Standard English from consistent long-term use. If textese is creating challenges for adults to use correct Standard English, one can assume adolescents, who do not have as much experience with SE (Standard English), are finding it even more problematic to recall correct SE usage and spelling. However, this negative effect does not seem to apply to contact with textese spellings. In 2011, Powell and Dixon discovered that adults' spelling increased when they were exposed to textism-like spellings verses standard incorrect spellings. Concurrently, in a study by Yousaf and Ahmed (2013), two-thirds of Pakistani university students feel challenged when writing English because they often make spelling mistakes due to their texting habits, which directly correlate with their texting frequency.

Universities have been thoroughly examining its effects on their students aged 18-25. Drouin (2011) attempted to study the relationship between literacy and texting in American undergraduate students. He found that while students claim to use textese in text messaging and in correspondence among friends, they rarely use textese when communicating with professors. This demonstrates that the use of textism is a conscious effort and able to be used in an appropriate context. Contrary to educator opinion, "it does not appear that textese just seeps out into writing everywhere and in equal amounts" (Drouin et al., 2011, p. 72). Researchers have yet to determine if college students who use informal textese when communicating with professors, have less success in academic writing.

In a study by Grace, Kemp, Martin & Parrila (2013) researchers examined groups of Australian and Canadian college students. They found that the adults who had difficulty learning to read as children use more textese when sending text messages. Researchers assume that

students "who found early reading difficult may have experienced lower levels of literacy confidence while forming views about the value of conventional spelling, leading to greater psychosocial freedom to use textisms as adults. Researchers also suggest that the college students who use Standard English instead of popular textese when texting may view texting as immature. Nonetheless, researchers list other factors, which may influence the results such as: phone technology, length of phone ownership and social pressures.

Plester, Wood, & Bell (2008) concluded that undergraduates' fluency of textism is not negatively associated with students Standard English Writing skills. Furthermore, Power and Dixon's research (2011) implies that spelling and writing skills are not hindered by exposure to text messaging language, largely because by the time a student is in college they are well versed in the basics of language competencies and are not as easily influenced by the bombardment of textisms.

Employing textisms in one's electronic correspondence may be considered a rite of passage for adolescents. Ability to speak fluent textese may proudly display an adolescent's connection to their culture and prominent use of the latest technology devices. Instant messaging and text messaging using the most current trends in language allow these individuals to experience a positive identification with their peers (Daniels, 2005). While displaying one's knowledge of the informal, abbreviated language may be positive for the younger generation, it has reverse affects on one's identify for the adult generation. Educated or professional adults who strive to embody an image of maturity and expertise, often avoid use of textisms, symbols, and emoticons as to not appear immature or unprofessional (Lewis & Fabos, 2005).

Effects on Children

Research displays mixed results of the impact of texting and social media use in children. Fewer studies have been done on this age group, 10-12 year olds. Kemp and Bushnell (2011) reported in 2008 the number of Australian children who possess their own cell phones: 19% of 8-11 year olds and 76% of 12-14 year olds. According to Cingel & Sundar (2012), the average age for children to receive their first cell phone is 10 years old.

Bloom (2010) discovered that children ages 6 and 7 could link an increase in their reading ability to when they began texting. Further results suggest that being able to use abbreviations and symbols for words requires linguistic rules. An individual must have a solid understanding of the language in order to create and use an unconventional form of it. In a study done by Coe & Oakhill (2011) English and Australian children consistently exhibited positive links to literacy and texting behaviors. Their plausible explanation is that texting displays "linguistic awareness" (Coe & Oakhill, 2011), such as phonetic spelling, friendly pronunciations, and nonverbal codes.

Also in 2008 Plester, Woods, and Joshi determined that British children between ten and 11 years old who sent three or more text messages a day had considerably lower literacy scores than children who sent less than three messages a day. Conflicting studies by Plester et al. (2009) show children that are strong at text translation activities and who "have a higher textism density in their text messages score better in spelling, reading, writing, phonological awareness and vocabulary." In Plester, Wood, and Bell (2008) a look at 11-year-old students established that children who have high text density (Rosen, Chang, Erwin, Carrier & Cheever, 2010, p. 422), had higher verbal reasoning scores and were able to translate textisms to Standard English

with fewer errors. However, misspellings like “are” instead of “our” correlated with lower reading word scores. Recently, researchers analyzed relationships between the content of adult’s and children’s text messages and their achievement on standardized writing tests. They found no relationship between the children’s grammar scores and common grammar texting violations, but found a significant negative association between adults’ achievement on the test and common grammar texting violations. This study was one of the few naturalistic longitudinal studies that considered the specific types of text messaging errors used and categorized them. During this longitudinal study, researchers collected text messaging data at two points in time, one year apart. The tendency to make the same types of grammatical mistakes was unstable over the year since many times a word may be spelled differently within the same text message. Researchers say this illustrates the reasons behind using textism and human behavior more than signifies one’s grammatical and spelling abilities or IQ (Wood, Kemp, & Waldron, 2014).

Overall, the results typically indicate texting as a positive influence on literacy for 10-12 year olds. In *Txting: The Gr8 Db8,* Crystal (2008) states:

> “I do not see how texting could be a significant factor when discussing children who have real problems with literacy. If you have difficulty with reading and writing, you are hardly going to be predisposed to use a technology that demands sophisticated abilities in reading and writing. And if you do start to text, I would expect the additional experience of writing to be a help, rather than a hindrance” (p. 157).

In ““My Kids Can’t Spell and I Don’t Want to Deal with It”: Spelling in Middle School,” (2008) Sandra Wilde examines the role textspeak plays on spelling in the classroom. Wilde claims that the middle school classroom teacher is frustrated by the students’ spelling skills, but

doesn't have time to commit to teaching spelling. She suggests helping students to identify the different forms of registers: fixed, formal, and casual. This can then begin the discussion on when textese should and should not be used. This conversation should then be followed by a discussion about how not spelling well has affected the students' lives inside and outside of school. It is important to help students identify that, regardless of the audience they are writing for, they will be judged on their spelling, and why give people the opportunity to judge you negatively as a writer. Furthermore, it is beneficial for students to understand that some people are naturally better spellers than others, and that everyone should have a goal to improve their spelling. Teachers would be wise to approach spelling with sensitivity and not being a "spelling cop. Circling kids' misspellings, correcting them, taking off points for them- none of this has any benefit, and can sap kids' own motivation for spelling correctly" (Wilde, 2008, p. 11). Instead, teachers should maintain a respectable tone towards the students and give them tips on how to become a better speller.

Most importantly, middle school Language arts teachers must point the students back to *why* spelling is difficult for them, and this comes down to two factors: "how much students have read, and how much natural spelling ability they have" (Wilde, 2008, p. 14). Students can understand that spelling ability is much like athletic ability; some people are more naturally inclined than others. Additionally, middle school students who do not read will begin to have more crucial problems than spelling. They should be encouraged to begin reading immediately, for various reasons, and exposure to words will increase their spelling power.

Carla Suffern, a middle school teacher from San Antonio, Texas published, "Teaching Spelling and Vocabulary with Greek Prefixes" (2008). Suffern confronts spelling when studying

Greek and Roman mythology. She introduces the 20 most commonly used Greek prefixes, and asks students to work collaboratively to recall words containing said prefixes. Students then peruse the dictionary to add words containing the prefix to their personal vocabulary. They then work with these words by creating colored images to accompany them and then use the words in context while journal writing. The spelling lessons are then embedded in the writing curriculum, adhere to traditional spellings, and not taught in isolation.

With the heightened use of textese spelling, teachers have wondered whether it was in the best interest of the students to return to a traditional spelling curriculum: new list of 20 words on Monday and test on Friday. Educators continually return to the same conclusion. Traditional spelling methodology is not effective in improving student spelling. Students "memorize words in order to pass a test and don't make personal connections to the words, don't retain those spellings for future use, and in turn, don't make them part of their own personal vocabulary" (Suffern, 2008, p. 8).

Beyond informal writing styles and non-traditional spelling, Generation Text is known for giving preference to technology over courtesy to people. Douglas Fisher and Nancy Frey asked, "What could we teach students now to foster technology use that doesn't neglect human interactions?" (Frey & Fisher, 2008, p.38). They had discovered that approaching student technology use like the "prohibition" only amplified the problem of students being discourteous when using technology. They felt the no cell phone policy was limiting opportunities to teach students positive social skills. They replaced the 'no cell phone policy' with a 'courtesy policy.' Students were given the privilege and responsibility of cell phone use during the day as long as it did not become discourteous to the teachers or peers. Cell phone use was adapted to school life:

a student texted his mother when he was proud of a grade, teachers would text students reminders about what to study for on the upcoming test (Frey & Fisher, 2008). Adoption of the 'courtesy policy' helped students learn the necessary digital etiquette to promote positive face-to-face interaction and social skills.

Effects on Multilingual Students

Various studies have concentrated on the differences in texting behaviors and literacy between different countries. Grace *et al* compares research results between Australian and English college students while Dansieh (2011) takes a closer look at university students at Wa Polytechnic in Ghana, Africa. Dansieh focuses on texting influences of college students who use English as a second language. He found that professors and students believe that using textspeak can harm English language learners' writing skills. Wa Polytechnic students displayed weak writing skills prior to entering the university as demonstrated on various assessments. Professors were advised to encourage students to be aware of differences between formal and informal writing. This study demonstrates that when the English language skills are fragile, the use of texting may be detrimental when trying to utilize formal Standard English.

Other African studies found native texters to use a high number of textese abbreviations, and phonetic spellings in a single text, compared to American texters who use a low number of non-standard spellings. Deumert & Lexander, (2013) explain that even in the low literacy population of Africans, text messages are one of the only instances where natives will write in their local language, while normally they utilize forms of English or French.

In *Txting: The Gr8 Db8,* (2008) Crystal examines the affects text messaging has on literacy in 11 different languages: English, French, Spanish, Italian, German, Swedish, Finnish, Welsh, Dutch, Chinese and Portuguese. All were said to be positively impacted by texting.

Shafie, Azida & Osman (2010) note writing as the chief issue for second language learners. Learners can acquire their first language naturally but still need formal writing instruction, and just because an individual can verbally communicate in a second language doesn't mean that they can communicate in writing to that same degree. Writing requires students to employ speaking, listening and reading; therefore it is the most challenging task for an English language learner. Their study involved research of Malaysian college students and found that using a high frequency of textisms made it difficult for the participants to recall correct spellings. Results further suggest, that great use of textspeak only shapes the language of users who have weak English proficiency.

Effects on Students with Language Impairments

Approximately 5 to 15% of children have language impairments or difficulties. In secondary schools it is nearly 15%. (INSERM 2007) Dyslexia, a specific learning disorder, impacts children globally in varying degrees (Simoes-Perlant et al.). It is characterized by "difficulties in learning to read despite conventional education, adequate intelligence, and sociocultural opportunity" (Simoes-Perlant, Thibault, Lanchantin, Combes, Volckaert-Legrier, & Largy, 2012, p. 67). Children with dyslexia typically lag behind their peers in the area of reading, spelling, phonological awareness, and visual-attention processing disorders, and writing by two or more years. Symptoms of dyslexia may be: confusion between letters and words; reversal of letters, syllables or omissions and additions, problems with articulation of words,

difficulty in segmenting syllables, a non-fluid and laborious reading. Similarly, dysorthographia, meaning difficulty in writing, displays symptoms in poor spelling, grammar, slowness, reversal of letters, syllables or omissions and additions (The International Dyslexia Association, IDA).

In Simoes-Perlant et al (2012) researchers examined the texting habits of French students with dyslexia. While 100% of the adolescents possessed their own phone, only 42% used it for texting because they preferred to make voice calls. This is considerably less than the 92% non-dyslexic students who reported using their cell phones for texting. More importantly, researchers answered the questions: Do students with dyslexia and dysorthographia (DD) use fewer textisms than normal writers? Do they use the same textisms as normal writers? Results prove that adolescents with dyslexia and dsyorthographia use an average of 39% of textisms compared to 48% used by normal writers (Simoes-Perlant, 2012). However, whether they use the same textisms, or SMS codes, as normal writers was not seen. The most significant finding was that while adolescents with dyslexia and dysorthographia may write the same quality of texts they do not employ the same quantity. Researchers assume since writing is more laborious for adolescents with DD, the efficiency of texting doesn't apply.

Furthermore, Veater, Plester, and Wood (2011) based on a study on the premise that children with dyslexia typically lack confidence as readers and withdraw from literacy activities, yet will willingly engage when they are able to interact with language in a playful manner without fear of failure. Researchers posed the question, do children with dyslexia engage with texting at the same level their peers do and are the same positive literacy gains achieved? The results concur with earlier studies that students with DD engage in less texting as students without DD, 57% to 31%, with DD students preferring calls to writing texts. Moreover, students

with dyslexia were more likely to not use the predictive text functions compared to the control group 54% to 43%. The study was unable to determine whether texting exercises will strengthen literacy and language skills in children with dyslexia.

Texting has even been studied as a tool to assist individuals with language impairments. Researchers Beeson, Higginson, and Rising (2013) followed a man with aphasia, a speech impairment also impacting motor control, making it difficult to handwrite. After engaging in the researchers' procedure this individual was able to better communicate through texting instead of paper and pencil. However, researchers also found that in terms of long-term memory, the patient benefited more from spelling words by handwriting them rather than practicing the spelling word through text.

Educator Perspectives

According to Hawley Turner and Hicks in *That's not Writing": Exploring the Intersection of Digital Writing, Community Literacy, and Social Justice* (2011), despite educators' best efforts America's students leave high schools with low test scores, few business skills, and are unprepared for college level academic writing. "Thus the problem of inferior writing skills extends beyond schooling; weak writing affects entire communities" (Hawley Turner & Hicks, 2011, p. 55). The effects of literacy have both local and global consequences. Whether or not one is involved in the field of education, society desires a literate community; therefore society cares about how writing is taught, or not taught, in schools (Hawley Turner & Hicks, 2011).

Some teachers and parents express concern about the usage of texting on a child's writing abilities, while some linguist believe texting is a part of literacy and should be recognized as

such. (Cingel & Sundar, 2012) Education Digest (2013) claims that teachers are in a prime position to examine the effects of texting and social media on students' schoolwork and social skills. In a survey conducted, 71% of teachers state that the greatest area of impact is students' attention span, with the second greatest area of impact as the weakening of writing skills. Seventy-five percent of elementary teachers cite videos games as the most problematic influence affecting academic skills, but 81% of middle school teachers believe that texting has the most negative influence on student achievement, specifically writing skills. One-third to one-half of adolescents reported using emoticons and shortened words in academic assignments (Lenhart, 2009). However, teachers do not believe overuse of media has been completely negative. Teachers also attribute media use to students' ability to multitask effectively and research information quickly.

Parents' and teachers' attitude on how texting influences academics largely depends on their view of technology in general. Those that find technology essential to daily life and successful careers are more likely to see the creativity and advantages behind social media and the benefits of engaging in textspeak. Those more resistant to technology will focus on the negative aspects such as the shifts in language from formal register to casual register (Children, Teens, and Entertainment Media: A View from the Classroom, 2013). This area becomes a point of contention for students and teachers as only 16% of teachers consider themselves "tech savvy" (Common Sense Media, 2012, p. 29).

Troy Hicks and Kristen Hawley Turner categorize the two most common types of literacy teacher in a modern digital world. The first type has access to a variety of technological devices and tools, understands how to utilize the tools, but lacks a critical understanding of how to

incorporate technology as part of the learning process. Instead, this teacher uses digital devices as an add-on, enrichment, or extension assignment. The second type of literacy teacher works in an environment, which is deprived of technology tools and insufficient Internet access. These teachers are aware of the modern student need of digital understanding and technological skills needed to succeed on state computerized tests however, they are left sharing few and outdated devices (Hicks & Hawley Turner, 2013).

"Should we ban instant messaging in school?" (DeGennaro, 2005), identifies the many challenges textspeak creates for educators, parents, and students. Educators have a difficult job supervising student behavior using educational tools such as iChat, laptops, and iPads. As these are recognized as beneficial educational tools, yet they are also a distraction for students and encourage the informal language known as textspeak (DeGennaro, 2005). Teachers surveyed state that the students most affected are low socio-economic, middle school students (Children, Teens, and Entertainment Media: A view from the classroom, 2013). This observation has not been proven but is based solely on teacher experiences reported in surveys. According to teacher accounts in the survey, texting is the major cause of diminishing writing skills. For example, teachers claim that the phonetic spelling of text lingo is widely used over standard or traditional spelling. Students commonly use short "blurb" responses instead of more comprehensive complex sentences. Also, students typically write for a casual or peer audience rather than a formal academic audience, which affects the voice or tone of the writing. However, most students experience displeasure in having to write formally for academic purposes over their preference for the more simplistic form of textspeak (Children, Teens, and Entertainment Media: A view from the classroom, 2013). One teacher stated, "Students now write papers like they are

texting and do not really consider grammar and spelling before turning in compositions" (Children, Teens, and Entertainment Media: A view from the classroom, 2013, p. 26).

A study conducted by Julia Spatafora, from Queen's University suggests that adolescent students who engage in texting have the ability to switch between textspeak and formal register, however many experience confusion between the two (Spatafora, 2008). Students interviewed stated that they based their writing register on a specific audience. In school the students knew the expectations of formal writing but had an attitude of "linguistic whateverism" (Spatafora, 2008, p. 6). Furthermore, students recognized the mistakes made when communicating in textspeak but found "a sense of joy and freedom" (Spatafora, 2008, p.6) in doing so. Spatafora encourages teachers to view textspeak, when used in the classroom, as an unedited piece of writing that has possibilities once it's refined.

The article written by Haas and Takayoshi (2011), "Young people's everyday literacies: The language features of instant messaging", examines the changing shape of writing. They state that language is moving away from an academic language and becoming an "everyday" language (Haas & Takayoshi, 2011). No longer are language rules important; everyone is valued as a writer. Language is becoming more about expression and less about technical aspects of writing.

Teachers also believe that the frequency of texting has hurt students' capability for communicating face-to-face. They see this at the greatest extent in middle schoolers, where 70% of teachers report noticing declined in social skills. Many teachers conclude that the majority of student social interaction is through social media and texting, therefore their social skills (when in a group) are decreasing (Common Sense Media). In *Alone Together: Why We Expect More*

from Technology and Less from Each Other, Dr. Sherry Turkle explores the possible outcomes overreliance on technology can have. Two major repercussions are the inability for humans to self-reflect and decrease in ability during face-to-face conversations.

"Instant messaging, literacies, and social identities" is a qualitative study about how electronic communication shapes the social identities of adolescents (Lewis & Fabos, 2005). These researchers found that online exchanges establish and maintain social relationships. In physical person-to-person interaction an individual can remain a wallflower or an inactive participant in a social activity. In the online world of messaging or texting an individual has to develop conversation skills and become an active participant to be included in social activity. Lewis and Fabos (2005) found that technological devices increase social communications and if an adolescent misses out on an instant messaging session they feel they have missed a social event and will be out of the loop the next day at school. In the world of text messaging, instant messaging and social media adolescents feel less inhibited, more confident, and more likely to initiate a relationship or conversation than in person (Lewis & Fabos, 2005). Electronic communication has become vital to the social relationships of adolescents. It creates relationships and shapes their social status.

Lankshear and Knobel (2002) believe that language is shaped by a phenomenon known as attention economy. The attention economy refers to the concept that an individual is valued if they receive the attention of others. The more attention one receives, the more valued he or she is (Lankshear & Knobel). Electronic communication and media technology provide a platform for adolescents to give and receive this attention that is so valued. People will communicate with colorful language and in ways which will provide them they attention the desire. Facebook,

Twitter, and Instagram are all platforms where an individual can be the lead role in an ongoing drama.

Naomi Baron has written several articles on the effects of texting and instant messaging on language. In "Instant Messaging and the Future of Language," Baron examines the transformation the English language has undergone due to the advent of technology. She reviews ways in which language has evolved over the past 1,000 years and explains that textspeak is the next stage in the natural evolution process of language. Baron believes that language reflects culture. After the Vietnam War the philosophy of education in the United States became more child centered. Educational practices became more informal as content was emphasized over mechanics (Baron, 2005). Baron compares the use of the words, "totally" and "like" which became prevalent in adolescent writing of the 1980s to textspeak phrases such as, "brb" (be right back) and "pos" (parents over shoulder). Baron invites apprehensive parents and educators to view the changes of language as a natural occurring and inevitable process (Baron, 2009). Dyson (2011) entreats educators to utilize text messages as authentic forms of writing that are meaningful to students. Text messages may be used in the classroom to exemplify the register of casual, social writing contrasted with formal, academic writing.

"The Changing Discourse of Language Study" describes written language as "living and breathing" (Wilson, 2005, p. 31). Language scholars understand changes in language are expected. However, academics lack this understanding and are ill equipped to implement applicable language curriculum within the classroom. Wood, Kemp, and Waldron (2014) advise teachers to, "teach their students the conventional rules of formal written language, while encouraging classroom discussion about the different registers of language and awareness of the

contexts in which it is essential to apply standard conventions and when these conventions may be relaxed" (p. 427). Furthermore, Hicks and Hawley Turner (2013) note that banning textspeak from the classroom will not improve student writing. Teachers must validate the language and illustrate its appropriate uses and aid students in understanding appropriate audiences and situations.

Wilson calls educators to view language as a "process of trial and error" and to see all speakers as language learners. Regardless of age and experience, everyone continues to "learn new vocabulary, develops dialect and slang, and learns new language rules depending upon social setting" (Wilson, 2005, p.35). Educators should embrace any changes that evolve in language and expand curriculum to explore the various hidden rules and structure of the informal English language that has always existed but never been validated by educators (Wilson, 2005).

Improving practices.

Teachers as digital immigrants. Classrooms across the United States are leading students through scripted literacy programs, which lack individualism and stifle creativity. Canned writing approaches do not stimulate budding writers, encourage self-expression or reflect life outside of the classroom. The only way to provide a responsible education to modern students is if classroom practices are reflective of current technology. It took nearly three decades to morph the writing process from its original format to the present process-oriented approach. Technology is advancing at break-neck speed. Students cannot afford to wait decades for teachers to get onboard with digital literacy (Hawley Turner & Hicks, 2011).

Teachers need to have a much better understanding of the actual experiences, interests, and skills of the young people in their classrooms in order to create effective instructional

> designs. Fueled by rapid technological change, youth interests and skills are highly mutable. Consequently, even teachers who are under thirty cannot use their own backgrounds as templates for the digital experiences of contemporary youth, because many of the online social networks and other digital spaces youth currently inhabit barely existed a decade ago (Mahiri, 2012, p. 144).

Even teachers that are regularly accessing and implementing technological devices may not be doing so effectively. In "No Longer a Luxury: Digital Literacy Can't Wait" (Hicks & Hawley Turner, 2013) discuss teachers who pride themselves on the use of classroom technology, yet aren't aware that many of their practices may be actually limiting student growth. For example, it is a common practice for teachers to set a guideline for the number of slides or links required in a PowerPoint presentation. In reality, this type of parameter confines student creativity just as the five paragraph model may limit students' free expression and written voice.

Another common mistake literacy teachers make is incorrect use of blogs. Blogging has become a popular and credible resource for sharing information and connecting with others. The common format of a blog is "initiate-response-evaluate" (Hicks & Hawley Turner, 2013, p. 60). This invites others to collaborate, connect, and converse about topics of interest to all participants. Often teachers will invite students to create a blog as a means of demonstrating knowledge of content, or as a formative assessment. Yet the term blog is in its true form when used as a verb and not a noun. *Blogging* is writing, publishing, and inviting comment (Richardson & Hunt, http://weblogged.wikispaces.com/Connective+Writing). The true form of blogging is rarely found in the literacy classroom. Even though literacy teachers are accessing

technological devices, utilizing apps, and following student blogs, if there is a lack of understanding that digital literacy is about critical thinking in a modern world and is at the center of the technology use, it will be no different than assigning "busy work" in the form of a worksheet.

Online game style quizzes and interactive graphs may engage a student, but not necessarily challenge their thinking or further their understanding. Games with a team aspect do not guarantee students will learn to collaborate effectively in a diverse group of peers. Teachers must know how to utilize these "tools" effectively to produce a meaningful learning experience for students.

> "They fail to develop digital literacy in meaningful ways. Similarly, using smartphones and/or social networks to send messages from the teacher to students or using wikis to fill in a preformatted page will not engage students in substantive conversation or collaborative content development" (Hicks & Hawley Turner, 2013, p. 60).

Teachers are considered digital immigrants while students are considered digital natives. Teachers often impose formal language on students and do not acknowledge the skill of code-switching as a valuable part of writing curriculum. The dismissal of this skill causes students to disengage from the writing experience because they view their instructors as dated or unenlightened.

Teachers- digital immigrants to digital citizens. Hicks and Hawley Turner, (2013) suggest three strategies to transform educators' into digital literacy leaders: (1) develop his or her own digital literacy, (2) engage in a larger conversation about digital literacy education, (3) support students in developing digital literacy (p. 62). They advise teachers to begin building

their personal experience with digital literacy by interacting with educational based blogs; not only reading but also responding. Another step is to increase social media networking. Next, teachers can begin contributing locally to open discussions on educational topics and reforms. Finally, model this process for your students, discuss the experience and encourage their journey to personal digital literacy growth.

Digital language is an alternate language, which is appropriate when used in the right context. Code-switching refers to the ability to maneuver between academic writing and digital writing, based on which best fits the situation. Kristen Hawley Turner suggests specific classroom activities to help teachers begin to "flip the switch." Initially, students must be able to identify the difference in formal and informal registers of speech and writing. Next, they should demonstrate the understanding of which register is appropriate based on the setting. The teacher then calls for students to "flip the switch" by translating language one register to another by changing the context of when and how the language is used. Students may document these translations in a reflection journal as a means to become aware of the language they use (Hawley Turner, 2009).

Code-switching should be utilized both ways; from informal to formal, but also formal to informal. Because code-switching "is typically 'one-way' and informal language is still seen as a deficiency," teachers should challenge students to also translate the formal to the informal (Hawley Turner 2009, p. 63) For example, translating a classic piece of literature into a text message would encourage students to apply and practice knowledge of academic writing instead of emphasizing digital writing, or textspeak.

Once students are aware of how language should change according to context, teachers will still need to lead students in "negotiating the code." Negotiating the code, describes the process of deciding what rules of language will be followed during a certain exercise. For instance, if students are required to write posts in a group platform, they will need to know whether all Standard English rules apply or if digital language will be accepted. Turner suggests allowing students to negotiate what's acceptable without teachers mandating expectations. Teachers may however, allow students to journal or brainstorm completely in textspeak as a way to easily communicate their thoughts, then translate them later to Standard English. Writing in the code "that comes most naturally to them may aid their thinking and ultimately support their writing. Accepting text speak as viable for these types of assignments provides another context in the classroom for students to engage using their primary discourse" (Hawley Turner, 2009, p. 63).

Whether the issue is censorship, diversity in text, or standardized assessments, English teachers are well experienced in advocating for their students. Now teachers of literacy have a new platform to champion- learning in a digital world.

In a study by Hawley Turner & Hicks, (2011) pre-service teachers experienced a conflict between their personal view of what writing is and should be with their philosophy of writing as a classroom teacher. Their personal view was more flexible and multimodal, while their professional perspective thought writing should be taught traditionally with focus on essential practices. One research participant realized,

"I have this stark contrast of myself as a writer and myself as a teacher of writing. They're really different to me. As a writer, I see all these liberal possibilities of what

writing means, and yet when I get in front of my 6th graders it turns into a very formulaic, how do they do it persona" (as cited in Hawley Turner & Hicks, 2011).

Teacher education programs are transitioning to help future teachers adapt to an ever changing twenty-first century classroom. Both pre-service and novice teachers are encouraged to further the transition of evolving literacy by enacting change within their own classrooms, but often face obstacles such as traditional school culture, school policy, pressures of standardized testing, and traditional conceptions of writing. However, a many of these teachers in a secondary English classroom view digital writing as an addition, not a part of their core instruction. In classrooms across the country there is a rigid focus of administrators and teachers alike to improve data. This single-mindedness creates an extreme pressure to only teach what will be assessed. One stated, "that's kind of foolish of me to take that time…to do something that isn't frivolous but isn't necessary either" (Hawley Turner & Hicks, 2011, p. 70). Statistically, one-third of new teachers who work in high-needs areas leave the profession after only three years of service, because of the aforementioned pressures and the inability to impact change in their schools and students (Kopkowski, www.nea.org/home/12630.htm). Schools and communities must be willing to allow new teachers to influence their school culture in new and positive ways, or risk losing potential catalysts of change.

The Digital Divide

The impact of textspeak on the English language only reaches as far as the hand of communication technologies. "Information and communication technologies (ICTs) such as computers, the internet, mobile telephones, and fixed-line telephones provide individuals, organizations, and nations with access to information and means to communicate with each

other" (Pick, Sarkar, & Johnson, 2015, p. 1). The digital divide refers to the disadvantage low-income populations experience due to their lack of access to computers and internet (Araque, Maiden, Bravo, Estrada, Evans, Hubchik, Kirby, & Reddy, 2013). Society is divided by the have and the have-nots of technology. The have-nots, low socio-economic populations who lack the means to attain technology devices, therefore also lack access to unlimited information and resources which the internet can provide. Progressive research is deepening our understanding of aspects of the digital divide. Access to computers and internet is only one facet to the digital divide. This is beginning to observe the differences in internet use, regularity and intensity, and computer literacy (Araque et al., 2013).

Communication technologies, along with social media, have transformed human interaction and have "been recognized to have seminal impact on social and economic development" (Pick, Sarkar, & Johnson, 2015, p. 1). The discrepancy between different geographical areas and groups of people is also encompassed in the "digital divide" (Pick et al.). Information and communication technologies, or ICT, has become so pervasive and necessary for modern living and professional success that, "the possession of ICT access at a high level has been viewed by the United Nations and other observers as a basic human right" (Pick et al.). Yet, worldwide, the United States is seventeen on the list of 157 countries, behind Scandanavia, Japan, South Korea, and the United Kingdom (Pick et al., 2015).

ICT accessibility differs state to state. In a study by Pick, Sarkar & Johnson, (2015) regions can be identified as clusters, which define a geographical clustering of states.

> "Cluster 1: "Selected non-Metropolitan." Technology access/use levels are intermediate. Most of the states are more rural, and are low to medium in their proportion metropolitan.

Cluster 2: “Northeast, California, Hawaii, Alaska.” Technology levels are high and resemble Cluster 3. Most states are in the Boston–Washington megalopolis and California, which are regarded politically as “blue states.”

Cluster 3:“Western, Sunbelt Cluster.” This highest cluster overall in ICT access/use is similar to Cluster 2, but higher in cell-phone-only, fixed-phone-only households, and Twitter use. It comprises twenty states mostly in the Rocky Mountain region, and some in the upper and western Midwest, as well as Georgia, and the Sunbelt states of Arizona, Texas, and Florida, while only Maine is in the East. The states tend to be large in land area.

Cluster 4: “Middle to Far South, Indiana, New Mexico.” The cluster has the lowest technology access/use levels, with broadband adoption in 57 percent of homes, and computers in 72 percent of households. These states have lowered educational and income levels, and few large metropolitan areas.”

Correspondingly, the states which have higher technology levels also have higher income, and college education (Pick et al., 2015). When looking at demographics, “Asian Americans had higher than average broadband use, while Hispanic Americans had reduced use” (Pick et al, 2015, p. 25). The NTIA report, Falling Through the Net: Defining the Digital Divide, concludes that only 40 percent of black and Hispanic households have access to home computers compared to white households.

It can be established that written language evolves and adapts to the needs of society (Mackenzie-Hoy, 2006; Russon, n.d.; Hedrick, 2008; Baron, 2009; Wilson; 2005). Textspeak was society’s adaptation to speed up communication in a fast-paced world

(Varnhagen et al, 2009). Undergraduate students who engage with textspeak rarely do so in professional and academic communications (Drouin, 2011), along with those adults who are proficient readers (Grace et al, 2013). Adults who are struggling readers tend to use more textspeak in their digital communications (Grace et al, 2013). Adversely, children show an increase in reading ability when they begin texting (Bloom, 2010). Adolescents between the ages of 13 and 17 send more text messages than any other age group (Cingel & Sundar, 2012) and one-third to one-half have admittedly used textspeak in their academic writing (Lenhart, 2009).

Current research has provided conflicting viewpoints on the use of textspeak and academic performance, even when it is apparent that states that have greater technology use also have greater income and education (Pick et al, 2015). Textspeak is not considered appropriate in professional or academic settings (Drouin, 2011), yet adolescents use it frequently (Cingel & Sundar, 2012). Research has not concluded what factors cause adolescents to utilize textspeak, whether it is self-expression, environmental influences, or a lack of understanding of the English language. More importantly, we have yet to determine how the use of textspeak affects adolescents academically and to what extent.

CHAPTER THREE: METHODS

Design

A correlational study is used in this research project to determine if there is any relationship between the independent variables, A) frequency of sent texts, and B) student Free and Reduced Meal eligibility and the dependent variable writing achievement, which is measured using the writing portion of the state standardized test. There is no control group used in this study, rather the range of texts would create a scale by comparing individual students. A multiple regression analysis would be used to find the statistics of the data. A multiple regression analysis investigates the relationship between more than one independent variable and one dependent variable. This test best suits this research design since the researcher is seeking to show a statistically significant difference in the mean scores between the two variable groups (Warner, 2013). The effect size will be evaluated using Pearson *r* correlation. The effect size is low if the value of *r* varies around 0.1, medium if *r* varies around 0.3, and large if *r* varies more than 0.5 (Cohen 1992). The data would then be displayed in a scattergram. This is a quasi-experimental study since class rosters and student schedules are preexisting and student participants cannot be randomly assigned.

The writing portion of the 2015-2016 ISTEP, Indiana's standardized test, was used to measure student writing achievement. The test scores that were used for this study were collected ex post facto. In other words, the test scores were administered and graded before the researcher began the study. Individual tests were pulled and examined and the writing scores were recorded.

According to Crystal (2008), there is a likelihood of 94% of middle school students owning their own cell phones. This is true even of lower income families. A federal program provides free Safe Link cell phones for every member of the family who qualifies for government health care or assistance (safelinkwireless.com). Therefore, socio-economic status should not skew the results of the data since a wide range of students will be able to participate.

Time spent texting will not be considered because quantity is more likely an influencing variable. Although students may text during class this would be a difficult factor to track and would be more likely to be included in a qualitative study.

Research Questions

RQ1: Is there a statistically significant relationship between frequency of texting and adolescent writing achievement?

RQ2: Is there a statistically significant difference in the impact of texting between adolescents eligible for Free and Reduced Meals and those adolescents who are not eligible?

Null Hypotheses

H01: There is no correlation between the frequency of text messages sent and the writing achievement of middle school students.

H02: There is no difference in the impact of texting on middle school students eligible for Free and Reduced Meals and those students who are not eligible.

Participants and Setting

Five hundred and six sixth grade students, 478 seventh grade students, and 525 eighth grade students attended this public middle school in central Indiana during the 2014-2015 school year. In the population of 1,518 students, only 136 students pay full price for their meals. The remaining 1,382 students receive either free or reduced cost meals. These numbers indicate that 78% of the students of the middle school live below the state poverty guideline, which is $23,850 for a family of four in Indiana. The middle school's student demographics are as follows: Caucasian 64%, Black 23%, and Hispanic 8%. Only 4% of the students are English Language Learners. Eighteen percent of the student population was regarded as Special Education students. Female students make up 44% of the student body while males make up 56% of the student body. The students performed as follows on the state standardized test, the Indiana Statewide Testing for Educational Progress (ISTEP): 52% of sixth graders passed both Math and English Language Arts (ELA), 53% of seventh graders passed both Math and ELA, and 51% of eighth graders passed both Math and portions.

The middle school is located in the town of Anderson, Indiana. According to the United States Census Bureau, the town has a population of 55,554 (2012). Seventy-eight percent of the population is Caucasian and 15% are Black. Like many Indiana towns, auto manufacturing served as a major source of revenue for the city and its residents in the 1940s and 1950s. Anderson has a long history with the automotive industry, beginning in the late 1800s when natural gas was discovered. This discovery drew various manufacturing businesses to the area. In the 1970s, the city was home to approximately 20 General Motors manufacturing plants. Over time, these plants slowly began to close and by 2005, none remained.

The school district serves a high rate of students in poverty. This is evident by the 78% of students holding Free and Reduced Meal status (2014) and a high school graduation rate of 57% (2010). Currently the unemployment rate is 10% (2013) that is higher than the national average of 7%. The median income also dropped in Anderson in the past 20 years and now averages around $33,000 (United States Department of Labor Statistics).

The surveyed middle school is now the only public middle school in the city of Anderson and it has an approximate population of 1,500 students in grades six through eight. The city has an area of 41 square miles, which requires many students to ride a bus for 45 minutes to one hour, each way. The school building was remodeled in 2012 after being transformed from a high school building into a consolidated middle school building. This remodel was done in hopes of improving the graduation rates. Highland High School (now Highland Middle School) had a graduation rate of 67% while Anderson High School's graduation rate rested at 57% in 2010. It seemed to aid in retention as the graduation rate in 2014 was 81%.

Power analysis for a multiple regression with two predictors was conducted in G*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, and a medium effect size ($f^2 = 0.15$) (Faul et al., 2013). Based on the aforementioned assumptions, the desired sample size is 68.

For this study, the number of participants sampled was 00 students, which according to Winter (2013) "more is better" applies to statistical inference. According to the law of large numbers, "a larger sample size implies that confidence intervals are narrower and that more reliable conclusions can be reached" (p. 1).

Purposive sampling is used in order to locate a specific subset of people, which in this case is adolescents grade sixth through eighth attending Highland Middle School who own a personal cellular device. This sampling method eliminates potential participants who do not fit the necessary profile or aid in the purpose of the study.

Parent consent forms and child assent forms will be made available to each student and parent on registration day. The students who have signed forms will be asked to complete the online survey. A question on the survey asks if the student owns their own cellular device. If they answer "no" the survey will end. If the student answers "yes" the survey will continue. This process will determine the number of students participating in the study.

Instrumentation

The main instrument used in this study is the Indiana Statewide Test for Educational Progress, (ISTEP). The test was instituted due to the No Child Left Behind Act. The ISTEP has been used as a measurement for numerous research studies (Davis, 2004; Boone & Scantlebury, 2006; Missall, Mercer, Martinez, & Casebeer, 2012).

ISTEP was created by McGraw Hill in 1987 and first administered in 1988. The test was given in the fall until the 2009-2010 school year, and was then conducted in the spring. The motivation for changing the test season was to test students on the material of their current grade level in hopes that they would perform better. When they were tested in the fall, students were performing lower because they were tested over academic standards they had learned the previous year and had to recall information they had learned up to year prior to the test. At the present time, the writing portion of the test is administered separately in March, while the remaining test sections are given in late April (Indiana Department of Education).

The ISTEP is administered to all students in Indiana each year beginning in 3rd grade through 8th grade, and then again when students are high school sophomores. Students are tested in reading, writing, and mathematics. Students in 4th and 6th grades are also tested on science concepts while 5th and 7th graders are tested on social studies content.

In this study, only the writing scores were collected and analyzed. The writing portion, called the Applied Skills Assessment, consists of short answer and essay questions. The answers are scored according to a four-point rubric. The four categories scored are Ideas and Content, Style, Voice, and Organization. According to the official ISTEP writing rubric, "A Score Point 4 paper is rare. It fully accomplishes the task in a thorough and insightful manner and has a distinctive quality that sets it apart as an outstanding performance."

The second instrument used is a questionnaire completed by participating students. (Questionnaire can be found in Appendix D.) The questionnaire was validated by a university professor, a middle school data coach, a middle school math teacher, and two middle school Language Arts teachers. The questionnaire consists of 8 questions. The first five questions gather data on the student: name, age, grade, gender, and name of Language Arts teacher last year, (this is helpful when pulling student test scores). Questions six and seven ask students about their personal cell phone history. Question number eight requires students to calculate how many text messages they sent during a one-week period. Students will be provided with verbal directions and a worksheet to help them tally the number of texts sent. The worksheet is a simple form which helps students keep a tally of the amount of texts to each contact and a place to add and record the total number of text messages. (Worksheet is found in Appendix E.) The questionnaire was put into a Google Form so that data could be easily recorded and compiled.

Procedures

The initial step in the research process included creating and validating a questionnaire. Once it was validated it was formatted into a Google Form survey. The survey can be found in Appendix D. Parent consent forms were made available during student registration on July 30th, 2016. There were ___ # of signed consent forms.

During the week of August 15, all building Language Arts teachers were emailed specific instructions on how to access the Google Form, and complete the tally worksheet. Worksheet can be found in Appendix E. Researcher organized all participants by homeroom teacher. Teachers were then emailed a list of the students in their homeroom classes who would participate in the study by completing the survey. Participants were also asked to bring their cell phones to class during the time of the questionnaire. Highland is a one-to-one school and each student is provided a Google Chromebook for the academic year. This makes it easy and accessible for teachers to implement the survey. Question four asks students if they have a personal cell phone. If they answer "no" they survey will end and their information will not be included in the study. The last question on the survey asks students to use the tally worksheet to manually count all text messages they sent during the past seven days and enter the final number as the answer on the survey. As surveys are completed, data is organized and stored into a Google Spreadsheet. Once questionnaires are completed, the researcher will review compiled data. Students who do not have test scores available will be eliminated from the study.

The participating students' ISTEP writing scores will be reviewed and entered into the spreadsheet. Since the study is using tests from the previous school year, tests scores will already be available. Using ex-post facto data will enable the research process to progress more

quickly, since there will be no need to wait four to six months on scored testing data to be returned.

The list of participants will be given to the school data coach. The data coach will use the school information system, Power School to identify each participant's eligibility for Free and Reduced Meals. Since identifying students' eligibility for Free and Reduced Meals is confidential information, the data coach will randomly assign each student a number. The data coach will keep the list of students and their identifier confidential by securing the information. Only the data coach will has access to this information. It is not to be released to anyone including the researcher.

Students will be categorized as eligible or not-eligible. This information will be indicated on the spreadsheet. The spreadsheet will be coded: 1- eligible, 2-not eligible. All data will be compiled in a spreadsheet, and analyzed using a multiple regression analysis in SPSS.

Data Analysis

The multiple regression analysis is the best method for analyzing this data because as inferential statistics it can be used to predict whether the results can apply to future populations. A multiple linear regression analysis will be used to determine the correlation between a criterion variable and the predictor variables (Gall, Gall & Borg, 2010). In other words, the analysis will determine a correlation between the population of eligible Free and Reduced Meal students and non-eligible students, and students' text volume and ISTEP scores. According to Allyn and Bacon (2007) multiple linear regression analysis is one of the most widely used analyses in the education field due to its ability to provide a wide range of information about relationships among variables. Multiple regression also speaks to the statistical significance of relationships

between data (Gall, Gall & Borg, 2007, p.253) which is an accurate approach when examining a correlational study.

The first step is to analyze the correlation between the ISTEP scores and student text frequency, or the strongest predictor and the criterion variable. In this case, the strongest predictor is the frequency of texting. This yields the multiple correlation coefficient (*R*) which will be the first predictor entered into the multiple regression. The second predictor entered would be the students' Free or Reduced Meal eligibility. These two predictor variables together produce a multiple correlation coefficient to illustrate the strength of the correlation. A scatterplot provides a visual analysis of the assumption homoscedasticity between the predicted dependent variable scores and the errors of prediction (Gall, Gall, & Borg, 2010, p.359). The scatterplot will reveal a positive linear relationship, a negative linear relationship, or no relationship. At first glance, outliers, or extreme scores, may be isolated from the data set. Tabachnick and Fidell (2007) describe the difference between the obtained dependent variable and the predicted dependent variable scores with the variance of the residuals should be the same for all predicted scores, homoscedasticity. If the assumption is met the data points on a scatterplot are clustered around a horizontal line. This reveals a positive relationship meaning a correlation between texting frequency and student writing performance. In contrast, any systematic pattern of clustering of scores is considered a violation (Tabachnick & Fidell, 2007). If data points are randomly scattered with no pattern or shape, then the assumption of homoscedasticity is met and we can conclude that the research shows no correlation between the variables.

Determining a correlation does not with certainty identify a cause and effect relationship. Limitations, both external and internal threats to research, exist beyond the researcher's control, which affect the results of the study or influence the behavior of the participants. (Gall, Gall & Borg, 2010)

Possible limitations may be that the population of the participating middle school has a high poverty rate and consistently low standardized test scores. The findings in this setting may be different than findings at an affluent middle school with higher standardized test scores. An external threat and potential influence to the study is the limited data collected. A 7-day sample of texting behavior will not produce as accurate results as a sample, which covers a longer period of time. Furthermore, the ISTEP scores used as the baseline to determine students' writing performance are one year old and may not accurately reflect students' current writing abilities. An issue that perpetually poses a threat to the validity of any test is the test-taker's level of motivation at the time the test is taken. Students may not attend to the assessment to the best of their ability, therefore skewing the data with inaccurate scores. Additionally, students utilize textspeak in a variety of social media including Face Book, and instant messaging. This study only looks at text messaging, one of many digital language platforms.

In order to address these threats, a future study could be replicated with a contrasting setting and demographic to verify the results can be applied to a larger population, and not just a high poverty demographic. In addition, the survey which was used to collect data on student texting habits was validated through an organized review of content to ensure that questions were clear and interpreted clearly. The survey provides information about student texting over a one-week period to better summarize overall texting behavior. Furthermore, once the current year's

assessment data is released, it could be applied to the study in place of the dated testing scores. Furthermore, if the study is to be replicated, the researcher may consider including the participant's volume of messages sent through Face Book and instant messaging.

CHAPTER FOUR: RESULTS

Text messaging has become an increasingly common form of communication, especially for adolescents (Varnhagen et al., 2009). Text messaging frequently uses "textspeak", which is characterized by the use of abbreviations, intentional misspellings, and improper grammar. Although parents and teachers worry about the impact textspeak has on children's literacy (Cingel & Sundar, 2012), some studies have suggested that students benefit from textspeak, showing that those who are proficient in translating "textspeak" into proper English exhibit greater reading and language scores (Plester, Woods, and Joshi, 2009). The most common view, however, is that textspeak damages the formal writing skills of students (Thurlow, 2006). The purpose of this study was to investigate the effect of texting on middle school students' formal writing achievement. This chapter begins with a description of the participant sample characteristics. This is followed by a summary of the results, along with a detailed analysis of the results. A brief summary concludes this chapter.

Descriptive Statistics

The final sample of 63 students consisted of 38 (60.3%) girls and 25 (39.7%) boys. Most students were from the 6th grade (n = 30, 47.6%), with the remaining students almost equally split between the 7th (n = 15, 23.8%) and 8th grades (n = 18, 28.6%). Of the 6th grade students, 53.3% were girls, and 46.7% were boys. Of the 7th grade students, 66.7% were girls and 33.3% were boys. These percentages were the same for 8th grade students, of which 66.7% were girls and 33.3% were boys. Figure 1 presents the gender breakdown by grade.

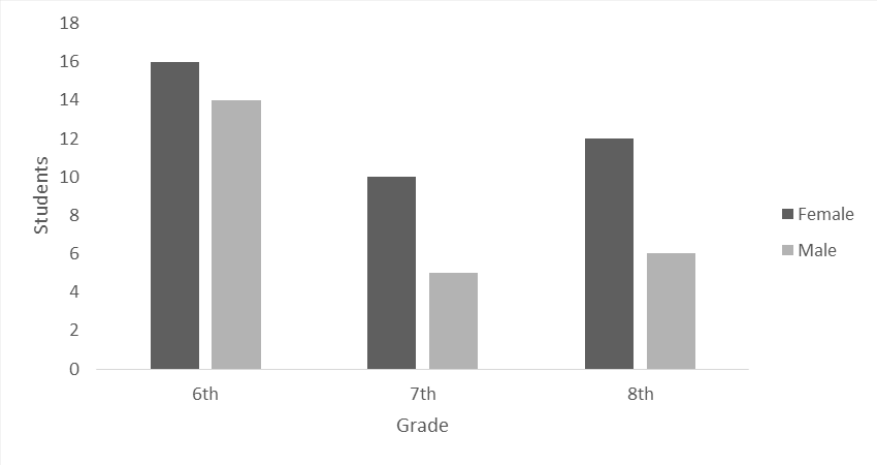

Figure 1. Gender by grade level.

The majority of students were eligible to receive free meals (n = 44, 69.8%). There were 5 students (7.9%) who received a reduced price meal, and 14 (22.2%) who received paid meals. In the 6th grade, 73.3% of students received a free meal, 13.3% of students received a reduced price meal, and 13.3% of students received a paid meal. There were no 7th graders who received a reduced price meal; 53.3% of 7th graders received a free meal, while 46.7% of students received a paid meal. There was only one 8th grader in the sample who received a reduced price meal, while 77.8% received a free meal and 16.7% received a paid meal. See Figure 2 for a breakdown of the free/reduced price meal eligibility by grade level.

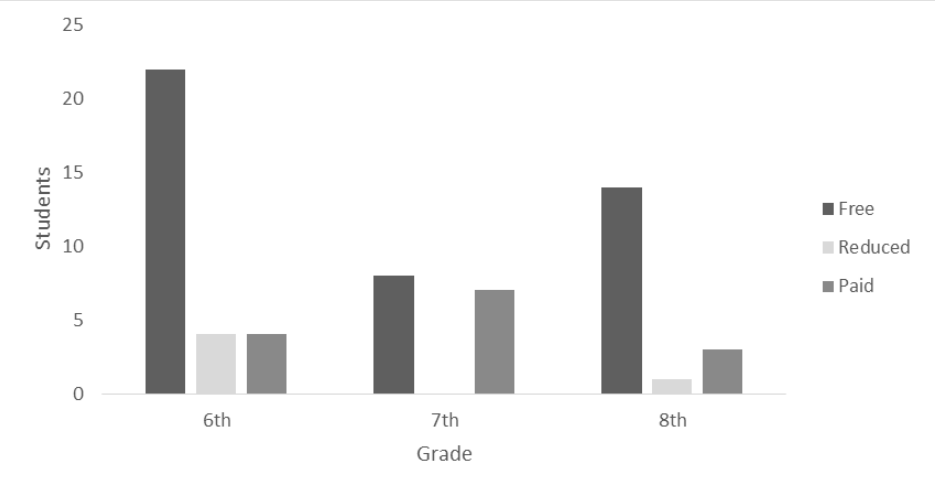

Figure 2. Free/reduced meal eligibility by grade.

The highest proportion of students passed the ISTEP without high achievement (n = 31, 49.2%), with 27 students failing (42.9%), and 5 students earning a high achievement pass (7.9%). Forty percent of 6th graders passed without high achievement, while 50.0% failed, and 10.0% passed with high achievement. A slight majority (53.3%) of 7th graders also passed without high achievement, while 40.0% failed, and 6.7% passed with high achievement. Of the 8th graders, 61.1% passed without high achievement, 33.3% failed, and 5.6% passed with high achievement. See Figure 3 for the passing rates by grade. Table 1 presents the frequencies and percentages of all main categories of demographic information.

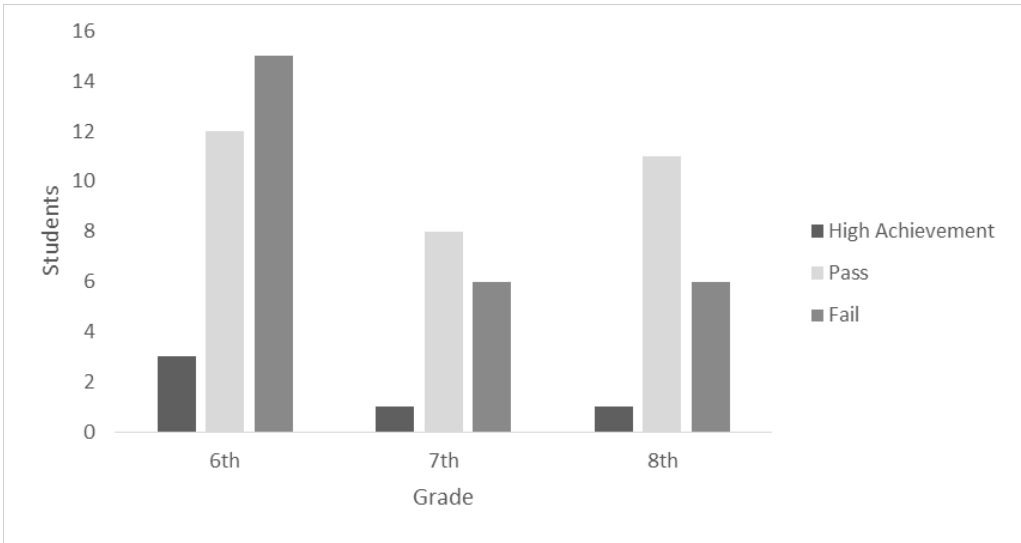

Figure 3. Passing rates by grade level.

Table 1
Frequencies and Percentages of Demographic Variables

Variable	*n*	%
Gender		
Female	38	60.3
Male	25	39.7
Grade		
6th	30	47.6
7th	15	23.8
8th	18	28.6
Free/Reduced Meal Eligibility		
Free	44	69.8
Reduced	5	7.9
Paid	14	22.2
Pass/Fail Rate		
High Achievement Pass	5	7.9
Pass	31	49.2
Fail	27	42.9

The average ISTEP score was 503.16 (*SD* = 53.64). In the 6th grade, the average ISTEP score was 482.467 (*SD* = 40.04). In the 7th grade, the average was 512.20 (*SD* = 70.79), while 8th

graders scored an average of 530.11 (*SD* = 45.12). The average amount of texts sent by the students in the last week was 119.56 (*SD* = 204.68). Average amounts of text messages increased by grade level: 8th graders sent the most texts on average (*M* = 211.17, *SD* = 312.38), while 7th graders sent an average of 129.9 (*SD* = 181.27), and 6th graders had an average of 59.43 (*SD* = 86.61) sent. Table 2 for all means and standard deviations.

Table 2
Means and Standard Deviations of Continuous Variables

Variable	Min.	Max.	*M*	*SD*
2016 ISTEP Performance Score Overall	392.00	693.00	503.16	53.64
6th grade	392.00	563.00	482.47	40.04
7th grade	425.00	693.00	512.2	70.79
8th grade	445.00	635.00	530.11	45.12
Text Messages Sent (in past 7 days) Overall	0.00	1022.00	119.56	204.68
6th grade	0.00	324.00	59.43	86.61
7th grade	0.00	600.00	129.87	181.27
8th grade	0.00	1022.00	211.17	312.38

Summary of the Results

One linear regression and one multiple linear regression were conducted, with frequency of texting and free/reduced meal eligibility predicting ISTEP performance scores. The results of these regressions were not significant, as indicated by *p* values less than .05 ($F(1, 61) = 1.84$, $p = .180$; $F(2, 60) = 1.19$, $p = .311$; Field, 2013). This suggests that text message frequency and free/reduced meal eligibility do not significantly predict ISTEP performance scores. As such, the null hypotheses for Research Question 1 and Research Question 2 cannot be rejected.

Detailed Analysis

Research Question 1. Is there a statistically significant relationship between frequency of texting and adolescent writing achievement?

H_o1. There is no correlation between the frequency of text messages sent each week and the writing achievement of middle school students.

This research question was examined using a simple linear regression. This is the appropriate analysis to perform when the researcher seeks to assess how a single predictor variable predicts a single criterion variable (Field, 2013). In this case, the predictor variable corresponds to frequency of texting, and the criterion variable corresponds to adolescent writing achievement.

Prior to the analysis, the assumptions of the linear regression were assessed. The assumptions of linearity and homoscedasticity were assessed using a scatterplot of the residuals. Linearity assumes a linear (straight) relationship between the predictor and criterion variables, and is assumed when a straight line is best fit through a scatterplot, rather than a curved line (Tabachnick & Fidell, 2014). Homoscedasticity assumes that scores appear in a block-shape with no major trend or pattern, indicating that scores are generally evenly distributed about the regression line (Tabachnick & Fidell, 2014). Visual examination of the scatterplot revealed that the assumption of linearity was met (see line of best fit in Figure 1), but that the assumption of homoscedasticity was not met, as there is a classic cone-shaped pattern that indicates heteroscedasticity (See Figure 1; Tabachnick & Fidell, 2014). As such, the results should be interpreted with some caution.

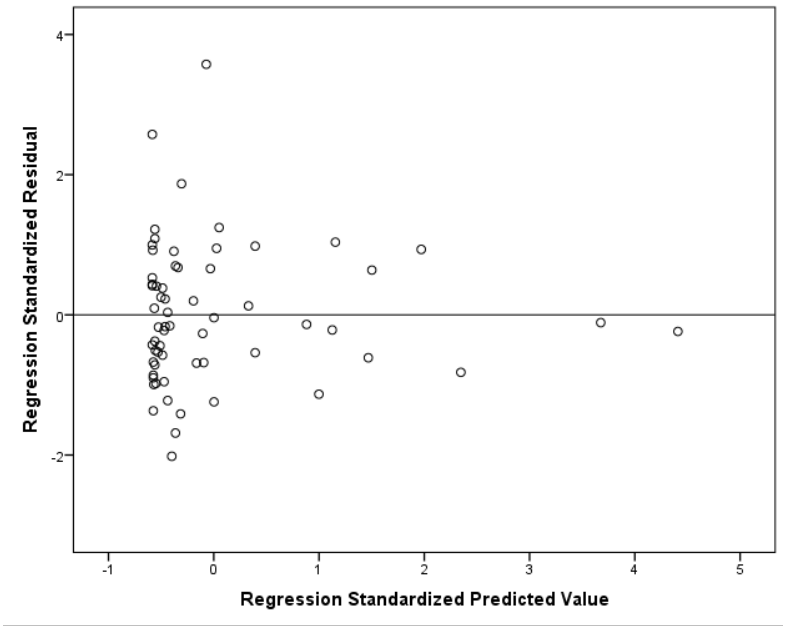

Figure 4. Scatterplot of the standardized and predicted residuals for the regression with text message frequency predicting ISTEP performance.

The overall regression equation was not significant, $F(1, 61) = 1.84$, $p = .180$. This indicates that text message frequency does not significantly predict ISTEP performance scores. As such, the null hypothesis cannot be rejected. See Table 3 for the full results of this analysis.

Table 3
Results of the Regression with Text Message Frequency Predicting ISTEP Performance Scores

Variable	*B*	*SE*	*β*	*t*	*p*
Text Message Frequency	0.05	0.03	.17	1.36	.180

Note. $F(1, 61) = 1.84$, $p = .180$.

Research Question 2. Is there a statistically significant difference in the impact of texting between adolescents eligible for free/reduced meals and those who aren't?

H_o2. There is no difference in the impact of texting on middle school students eligible for Free and Reduced Meals and those students who are not eligible.

In order to address this research question, a multiple linear regression was performed. The multiple linear regression is used when the predictive relationship between multiple predictor variables and one criterion variable is sought (Field, 2013). In this analysis, the predictor variables correspond to text message frequency and free/reduced meal eligibility. The criterion variable corresponds to ISTEP performance scores. Prior to the analysis, the assumptions of the multiple linear regression—linearity and homoscedasticity—were examined using a scatterplot of the residuals. The assumption of linearity was met, as the line of best fit is linear, and the assumption of homoscedasticity was not met, as there is not a block-like, evenly distributed pattern (see Figure 2; Tabachnick & Fidell, 2014). The results should thus be interpreted with some caution.

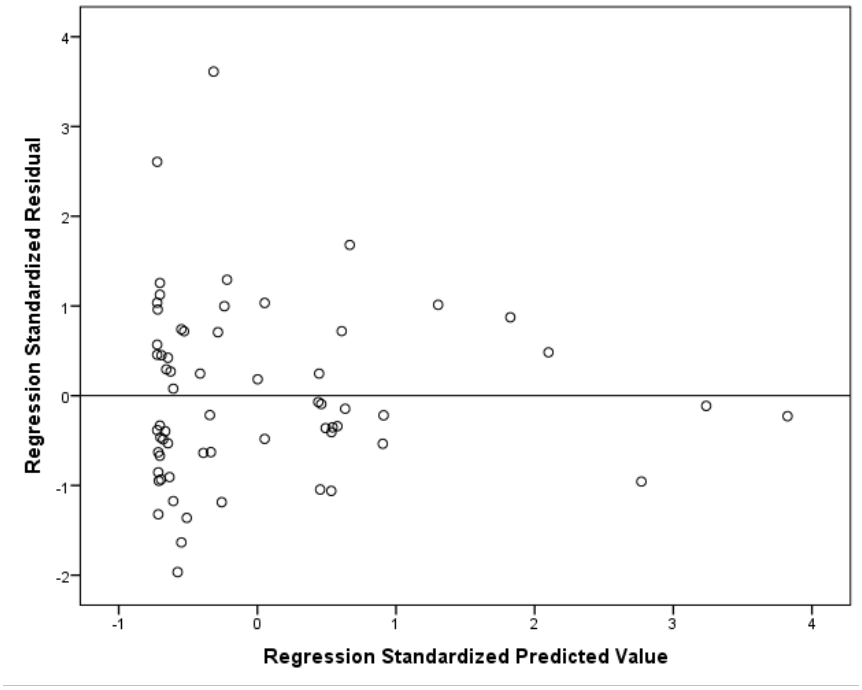

Figure 5. Scatterplot of the standardized and predicted residuals for the regression with text message frequency and free/reduced meal predicting ISTEP performance.

The overall regression equation for this model was not significant, $F(2, 60) = 1.19$, $p = .311$. This suggests that the combined variables of text message frequency and free/reduced meal eligibility do not significantly predict ISTEP performance. As such, the individual predictors were not examined further. The null hypothesis cannot be rejected. See Table 4 for the results of this analysis.

Table 4
Results of the Regression with Text Message Frequency and Free/Reduced Meals Predicting ISTEP Performance Scores

Variable	*B*	*SE*	*β*	*t*	*p*
Text Message Frequency	0.04	0.03	.16	1.21	.233
Free/Reduced Meal Eligibility	12.24	16.44	.10	.744	.460

Note. $F(2, 60) = 1.19$, $p = .311$.

Chapter Summary

This chapter detailed the sample characteristics and analysis of the research questions. The sample consisted mostly of girls, and mostly students in the 6th grade, with the rest of the sample almost evenly split between 7th and 8th graders. The majority were eligible for free meals, and most passed the ISTEP with high achievement. Students in the 6th grade tended to text the least, and had the lowest average ISTEP scores, while 8th graders tended to text the most, and had the highest average ISTEP scores.

One simple linear regression and one multiple linear regression were conducted, and were found to not be significant. These results suggested that neither text message frequency nor the combined model using text message frequency and free/reduced meal eligibility significantly predicted ISTEP score performance. As such, neither the null hypothesis for Research Question

1 nor the null hypothesis for Research Question 2 may be rejected. Chapter 5 will discuss these results in terms of the existing literature; the strengths and limitations of the study will be addressed, and directions for future research will be provided.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Overview

The purpose of this study is to determine if there was a correlation between middle school student writing achievement and the frequency of texting. The study began with the null hypothesis that there is no correlation between the frequency of text messages sent and the writing achievement of middle school students. The results verified the null hypothesis. Previous studies have concluded that elementary students who have the ability to code-switch, and use textspeak score higher in reading and spelling assessments. The assumption is that a student must have a solid grasp of language structure, phonics, and spelling, in order to manipulate language as used in textspeak as addressed in the study by Coe & Oakhill (2011), Plester, Wood, and Bell (2008) and Rosen, Chang, Erwin, Carrier & Cheever, (2010).

The majority of research has been conducted with college undergraduates. Research found that college students appear to understand the appropriate utilization of textspeak and only utilize it in a casual context, by this point in their educational career and with their life experience, they understand when to use textspeak and when to use Standard English (Shafie & Azida, 2010). They typically do not use it when corresponding in a professional setting, with a superior, or in an academic context.

The major gap in research occurs at the adolescent level. There are few studies with concluding results on the impact of texting on adolescent students. The intent of this study was to help fill that gap.

Summary of Findings

The study investigated the null hypothesis that there is no difference in the impact of texting on middle school students eligible for Free and Reduced Meals and those students who are not eligible. This was verified. The analysis of results indicated that text message frequency and free/reduced meal eligibility did not significantly predict ISTEP score performance. Therefore, this test determined that there is no correlation between how often middle school students text and their writing achievement.

Discussion

Since 78% of the 63 participants were identified as living in poverty, the postulation was they would be more susceptible to a negative influence of textspeak and be more likely to use it in academic work. Eric Jensen's work on *Teaching with Poverty in Mind: What Being Poor Does to Kids' Brains and What Schools Can Do About It,* (2009) concludes that students who live in poverty have underdeveloped cognitive skills and executive function. He states, "Socioeconomic status is strongly associated with a number of indices of children's cognitive ability, including IQ, achievement tests, grade retention rates, and literacy" (p. 31). This association is established from birth through adolescence, and into adulthood. Due to the preceding factors, these students attain lower academic achievement and score lower on examinations. Testing bias may also occur, which is another detriment to students who do not have the same background knowledge and norms of middle class test writers. Executive function affects a student's ability to react appropriately in a specific environment, like talking out of turn and waiting in line. If a student is deficient in this area, success in an educational institution is highly unlikely.

Earlier work done by David Crystal (2008), Bloom (2010), Coe & Oakhill (2011), Plester, Wood, & Bell (2008), Rosen, Chang, Erwin, Carrier, & Cheever (2010) indicate that elementary aged students perform higher in the areas of literacy if they have been exposed to texting. Elementary students who text can also spell phonetically, which demonstrates phonemic awareness. They can manipulate language to craft phrases, which exhibits an understanding of syntax and structure. In order to use textspeak one must have an advanced understanding of language, spelling, and communicative writing. All essential components of first-class writing.

Texting studies have been done on undergraduate students more than any other age group, Drouin (2011), Kemp (2010), Powell & Dixon (2011), Yousaf & Ahmed (2013), Grace, Kemp, Martin, & Parrila (2013), Lewis & Fabos (2005), and DeJong & Kemp (2010) to name a few. These studies covered a variety of issues concerning texting from preferred methods of communication, to the amount of textspeak used in correspondence with professors. The studies concluded that the majority of American and foreign undergraduate college students are not falling prey to textspeak in academic writing. Only 13-16% of students used missing punctuation or capitalization in professional correspondence (DeJong & Kemp, 2010).

However, this study was conducted in order to fill the gap of empirical data on adolescents and textspeak. If textspeak is the demise of the English language, educators may be the first to uncover the evidence in classroom writing. Little to no research has been conducted on how the frequency of textspeak impacts writing performance in middle school students, which is interesting since this group sends nearly 200 text messages a day. The results of this study did not support the popular hypothesis. The data showed that out of the 63 participating students, 49% of students passed the state writing exam and 43% failed. There was no correlation

between texting and whether or not students passed or failed the state standardized writing exam. Therefore, the frequency of texting does not harm student test scores. Nor does the amount of student textspeak contribute to phenomenal writing skills.

Society has always looked for a scapegoat. In the 1950s teachers accused poor academic work on bubble gum and the Beatles (McGraw Hill, 1952). Today technology and the internet may be the reason for underperforming, undisciplined, distracted learners. Each decade has its own culprit of demise. Society tries to pinpoint the reason for lack in humanity, in education, and in intrinsic satisfaction. When really there isn't a culprit at all. It's all part of evolution. The evolution of society, and the evolution of language. We should look forward to what the next era's life-changing device or practice will be.

Research has proven that children who use textspeak tend to do better in academic writing, spelling, and language arts. We also know, that by the time a student reaches college, the majority of the time they know when to use formal or casual language registers whether it's in speaking or writing. Questions still remain, however, whether middle school students' writing skills are affected by texting habits.

Regardless of outcome, it's all about perspective. The way that we perceive the permeation of technology into our lives as an uninvited, domineering guest or a welcomed, innovative addition. Language is an invention that continually evolves. As Guy Deutscher states, "But this invention is not the design of any one architect, nor does it follow the dictates of any master plan. It is the result of thousands of craving minds across the ages. So while language may never have been invented, it was nonetheless shaped by the generations."

Implications

Educators measure excellence in writing by correct spelling, word counts, and age appropriate vocabulary. Linguists have uncovered a truth that most educators have not, and that is that language is interaction. Textspeak, a written form of language, demonstrates the results of interaction within a sub culture just as dialect is considered interaction within a socio-cultural group. (Blum, 2010) In order to evaluate student writing, educators have limited language in order to quantify its value and grade the impact of expression.

As technology continuously changes communication styles will most likely change too. Teachers are encouraged to adopt a new perspective of language: language as interaction and language as a process of trial and error. All speakers are language learners. We continue to learn new vocabulary, develop various dialects, and learn new rules depending upon our changing social setting.

Code-switching is the skill of transitioning back and forth between formal and casual registers of language depending upon context and setting. In a technology driven environment the line can become blurred in an online academic setting (Hawley Turner). Teachers may have to give explicit instructions about the type of language which is appropriate to use in discussion board forums or online communications between classmates. Especially as more schools are moving to a one to one initiative, meaning each student is equipped with a laptop or tablet. The majority of their academic work is now being housed in the same platform used for their entertainment and social exchanges.

Negotiating the code, or allowing students to help decide what rules of language will be followed during certain class activities can assist teachers in adopting a new flexible attitude

towards language. Permitting students to journal or brainstorm in textspeak, since it's the code that comes most naturally to them (Varnhagen, 2009), can aid their thinking and ultimately support their writing. Teachers may model their journey towards digital literacy by reading and responding to educational blogs, increasing their social media networks, and contributing to educational forums.

As educators we have a responsibility to teach our students to succeed in a quickly changing, digital world. Students must become digital writers and citizens so that they can contribute to the larger society of which they are part. "In the spirit of social justice, we believe that digital literacy is an emerging human right and that it is vital for community development and citizenship" (Hicks, 2013).

Limitations

One possible limitation for the study is the collecting data from only a one-week period of time. Analyzing text message frequency over a one-month period of time may have provided a better window into students' texting habits and behaviors. Furthermore, a more reliable system for counting text messages would have been better than students manually going through their text messages and counting each sent text from each contact. There is a lot of room for error in asking students, who may not be paying careful attention, to give an exact count of messages. Some students could have easily counted erroneously or counted both sent and received text messages instead of only sent messages.

Another limitation to the study was the amount of participants. Sixty-three participants were the minimum needed for a credible study. Unfortunately, of the 300 students who received parent permission to participate in the study, only 101 students completed the online survey. The

101 students that completed the online survey, there were 38 students who did not have a personal cell phone, or did not have ISTEP scores available, leaving a total of 63 student participants. Forty-eight percent of the participating students were sixth graders, 26% were seventh graders and 28% were eighth graders. It would have been better to have a more even distribution of each grade represented. I believe it may have provided more accurate data to have more eighth grade participants in the study. Eighth graders are more likely to have a cell phone than sixth graders, and are more likely to have developed stronger texting behaviors by age 13 rather than age 11.

Demographics may have indirectly created bias in the results of the study. Since 78% of Highland Middle School students live in poverty, the average state test scores run lower than school districts who are primarily made up of middle class students. This study may provide different findings if conducted in a different demographic context.

Recommendations for Future Research

Future research should be conducted in a similar manner, but with a higher number of participants aging twelve and thirteen years. If the study were replicated, it would be more advantageous to subscribe a more accurate method for collecting the frequency of text messaging, such as using an app on each participants' phone that will provide the exact number of sent text messages. Participants could download the app once consenting to participate and begin immediate use. The app could then report the number of texts sent directly to the researcher at the end of a recorded period. This wouldn't infringe on privacy of participants, or allow for participant error in counting.

It may be advantageous to collect data from a longer texting period and record a broader sample of student writing scores instead of looking at one single standardized test. In many cases, participants had to be eliminated from the study because they did not have scores to report. Looking at students' writing portfolios and examining select pieces would give a more representative sample of students writing performance.

Since the study was conducted in a population of high poverty students, it would be interesting to see if the results differ in a population of middle class, as well as, affluent middle school students.

Summary

Texting burst into western culture. It changed human behavior and is leaving behind a lasting imprint on the American English language. Individuals sharing a common tongue form a connected culture, and textspeak has further bonded society through the English language. Textspeak has permeated Standard English and made phrases like "lol, ttyl, idk" to become ubiquitous terminology for children, teens, and adults. Accounts of textspeak gone wrong are told as humorous anecdotes.

"Your great aunt passed away. LOL"

"Why is that funny?"

"It's not funny, why would you say that?"

"Mom, LOL means laughing out loud."

"Oh no! I just sent that to everyone! I thought it meant lots of love!"

Texting has the ability to disguise our deficiencies through the magic of autocorrect. Now that everyone has the same spelling capabilities, content becomes king over conventions.

Writers are free to explore ideas, cohesion of thoughts, structure of verse; all skills, one may argue, more significant than attention to primeval rules such as i before e. Textspeak has the power to communicate more cleverly and to display personality and tone through emojis and to add another dimension to writing.

All of the wonders of texting yet educators are still concerned that it is the degeneration of student writing. The primary platform adolescents use to communicate is texting. Teens send approximately 3,500 text messages every month, almost twice as any other age group (Cingel & Sundar, 2012). A study by Education Digest (2013) noted that 81% of middle school teachers believe textspeak has negative effects on student writing, commenting that many students use emoticons, acronyms, and shortened phonetic spelling in their school writing assignments. This study sat out to support those teachers' theories, however the results concluded something different.

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APPENDIX A: IRB APPROVAL

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

7/13/2016

Jennifer French
IRB Approval 2562.071316: The Effect of the Frequency of Texting on Middle School Students' Writing Achievement

Dear Jennifer French,

We are pleased to inform you that your study has been approved by the Liberty IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School
Liberty University | Training Champions for Christ since 1971
LIBERTY
UNIVERSITY.

APPENDIX B: PARENT CONSENT FORM

Title of study: The frequency of texting on middle school students' writing achievement

Principal Investigator: Jennifer French, Liberty University

Liberty University

Academic Department: Department of Education

Dear Parent or Guardian,

Your child is invited to be in a research study about how text messaging may impact writing test scores. This research involves completing a survey about their text messaging habits and looking at previous ISTEP scores. The survey asks for the student's name, grade, gender, and how often they text message. Participants will be asked to review and record the number of text messages they sent on a particular day. Please take a moment to review this form and ask any questions you may have before agreeing to have your child in the study. This study is being conducted by Jennifer French, English and Language Arts Instructional Coach at Highland Middle School, as a dissertation study for a Doctor of Education degree with Liberty University. Dr. Karla Swafford of Liberty University is the supervisor of the study. Your school principal has granted permission for this study to take place in your school.

Background Information:

The purpose of this study is to understand how frequent text messaging impacts student writing by determining whether there is a connection between test scores and the frequency of text messaging. The results of this study will help educators make informed decisions about writing instruction that may benefit students such as yours.

Procedures:

If you agree to let your child be in this study, he or she will be asked to do the following things:

1. Your child will be asked to return the signed Parent Consent form to his or her Language Arts teacher.
2. Your child will be asked to sign an assent form in which he or she will volunteer to take part in the study.
3. Your child will be given a brief online survey to complete s. The survey asks your child for his name, age, grade, and gender. All identifying information will be redacted once the study is completed to ensure confidentiality. The main portion of the survey asks questions about student's text habits and the exact number of text messages sent within a one-week period. Students will use their cellular phone to locate this information.
4. Your child's 2014-15 ISTEP scores will be reviewed and recorded, along with the number of text messages they sent.

Risks and Benefits of Being in the Study:

Watching the video and completing the survey does not cause any greater risk to students than would be encountered during typical school instruction. Non-participants may feel marginalized

in this research process as an unintended consequence. However, these situations can also occur as part of the teaching and learning process under normal circumstances.
The researcher will work with your child's teacher to avoid interruption of critical times of instruction. This study may benefit students by increasing awareness of how textspeak (the casual text messaging language) may affect their school writing performance. This research will help educators make informed decisions regarding writing instruction.

Compensation:
Participants will not be compensated for enrolling in this research project.

Confidentiality:
The records of this study will be kept strictly confidential. Any published report will not include any information that will make it possible to identify a participant. Research records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study:
Students can choose not to participate in this study. The decision whether or not to participate will not affect any current grades or relationship with his or her current school or with Liberty University. If you decide to allow your child to participate, he or she is free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:
The researcher conducting this study is Jennifer Eltringham-French who is being supervised by Dr. Karla Swafford of Liberty University. **You are encouraged to ask any questions** you may have at any time by contacting these individuals at the following email addresses:
Jennifer French: jeltringham@liberty.edu. *Karla Swafford*: knswafford@liberty.edu
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), please contact the Liberty University Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24502 or email at irb@liberty.edu

PARENT CONSENT FORMS

Please return only this page to your child's Language Arts teacher. You may keep the other pages of this information for your records.

Statement of Consent:

I have read and understood the information provided on the research study through my child's Language Arts class. I have been given an opportunity to ask questions and have received answers to my questions. I consent to having my child participate in this study.

Student's name: _____

Signature of Parent or Guardian: _____ Date: _____

Signature of Researcher: _____ Date: _____

APPENDIX C: STUDENT ASSENT FORM

Assent of Student to Participate in a Research Study

What is the name of the study and who is doing the study? My name is Jennifer French and I am conducting a research study with Liberty University on how text messaging affects student writing achievement. I am supervised by Dr. Karla Swafford of Liberty University.

Why are we doing this study? This study is being done so that we can determine whether frequent text messaging affects students' writing test scores.

Why are we asking you to be in this study? You are invited to be in this study because you have a Language Arts class at Highland Middle School.

If you agree to participate, what will happen? You will be given a brief online survey to complete during your Language Arts class. You may be asked to take the survey in a different area like the computer lab. The first part of the survey asks your name, age, grade, and gender. The second part of the survey asks you questions about how often you send text messages. You will be asked to look at your past text messages and count the number of text messages you sent within a one-week period. This survey should not take more than 15 minutes.

Signing your name below means that you want to be in the study.

Student Printed Name: _____

Student Signature: _____

APPENDIX D: STUDENT SURVEY

Student Texting Survey

(Students completed the following survey questions on Google Forms.)

What is your name?

How old are you?

What grade are you in? (6^{th}, 7^{th}, 8^{th})

What is your gender? (male/female)

Who was your Language Arts teacher last year? (information used for pulling data)

Do you have your own cell phone? (Yes/ No) IF NO, SURVEY ENDS

How old were you when you began texting?

Exactly how many text messages did you **send** last week? (Monday through Sunday)

APPENDIX E: TEXT MESSAGE TALLY WORKSHEET
TALLY SHEET DIRECTIONS

You must have your cell phone to complete this task.

You may use the box to keep a tally of the text messages you ***sent*** during the specified day. Then write the total text messages sent on the total line below. Then add all of the totals and record the final number of text messages you sent.

Participant Name: _____

Monday, _____, _____, 2016 to Sunday, _____, _____, 2016
(month) (day) (month) (day)

TOTAL NUMBER OF TEXT MESSAGES SENT: _____

Monday

TOTAL TEXT MESSAGES SENT: _____

Tuesday

TOTAL TEXT MESSAGES SENT: _____

Wednesday

TOTAL TEXT MESSAGES SENT: _____

Thursday

TOTAL TEXT MESSAGES SENT: _____

Friday

TOTAL TEXT MESSAGES SENT: _____

Saturday

TOTAL TEXT MESSAGES SENT: _____

Sunday

TOTAL TEXT MESSAGES SENT: _____

TOTAL MESSAGES SENT DURING ONE WEEK:_____