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EXPOSURE TO "TEXTISMS" DOES NOT LOWER SPELLING SCORES FOR ELEMENTARY SCHOOL AGED CHILDREN

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ABSTRACT

"Textisms" are semi-standardized abbreviations and conventions uses in SMS text messaging. Students in the fourth and fifth grades (N = 136) were exposed to words on a spelling list as correctly-spelled words, incorrectly-spelled words, or "textisms" to determine whether short term exposure to "textisms" decreased spelling performance for elementary aged children. Multivariate ANOVA found exposure type significantly impacted post-exposure spelling, $F(3,132) = 5.483$, $p<0.001$. Individual t-tests for each group found exposure to correctly spelled words significantly improved spelling ability on spelling posttest, $t(35) = 5.399$, $p<0.0001$, unlike exposure to incorrectly spelled words, $t(29) = -1.96$, $p<0.060$. Textisms similar to traditional English spellings showed almost no change in spelling ability, $t(28) = -0.064$, $p<0.950$, exposure to non-traditional orthographic forms showed a slight decrease from pretest to posttest, $t(40) = 1.39$, $p<0.172$. Difference in posttest scores between participants in the two textism groups suggests that children may derive orthographic information from some textism forms, but do not decrease spelling abilities because of limited exposure to textisms.

Keywords: Spelling, Textism, Elementary Education, Social Influences, Technology Utilization, Cognitive Processing

1. INTRODUCTION

As of the year 2012, over 85% of people living in the United States owned a mobile phone (Duggan and Rainie, 2012). An increasing percentage of students use cell and smart phones every day, reflecting the larger trend of constant media exposure for children under the age of 18 (Roberts, 2008). Text messaging and other forms of mobile communication are on the rise, with 63% of teens reporting that they exchange text messages on their phone daily (Lenhert, 2012). Along with this increased use of cell phones came spelling shortcuts and abbreviations used in text messaging (texting).

The new language of texting commonly involves the usage of shortened words or phrases referred to as "textisms." These abbreviations have been divided into nine categories by Thurlow (2003). Categories include shortenings (using 'vid' for video), contractions ('msg' for message), G clippings (dropping the final g in a word such a 'goin' or 'comin'), other clippings (dropping final letters in a words such as 'hav' 'or ankl'), acronyms, initialisms ('lol' for laugh out loud), letter/number homophones (using '2nite' for tonight), misspellings, non-conventional spellings and accent stylizations ('was sup' in place of 'what's up'). Texting has been demonstrated to decrease spelling ability in adults while exposure to a correct spelling can benefit spelling performance (Brown, 1988; Jacoby and Hollingshead, 1990; Dixon and Kaminska, 1997). Media coverage on the effects of exposure to textisms and text messaging on spelling and reading skills has been almost exclusively negative (Thurlow, 2006). Because of the media coverage, many parents are

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concerned that exposure to textisms will have negative consequences for their children.

For elementary school-aged children, exposure to correctly spelled words benefits spelling; however, there is not a significant decrease in spelling ability caused by exposure to misspellings (Bradley and King, 1992; Dixon and Kaminska, 2007; Gilbert, 1935). In order to explore this difference, Dixon and Kaminska (2007) divided 93 children into four groups. Participants were given a spelling pretest and then assigned to copy, read aloud, or read in context correctly and/or incorrectly spelled words during an exposure phase. No significant detrimental effects among the differing groups of children were found from exposure to incorrectly spelled words.

Several theories have been suggested for why exposure to incorrectly spelled words has little negative effect on the spelling ability of children. Bradley and King (1992) suggest that exposing children to phonetically plausible misspellings provides them with orthographic information that they might not previously have seen or been able to remember. Dixon and Kaminska (2007) posit that in adults, long-term exposure to correctly or incorrectly spelled words acts as an implicit primer for subsequent spellings. They suggest that children do not have a fully developed spelling lexicon and rely more heavily on explicit memories of exposure to spellings.

Contrary to expectation, Powell and Dixon (2011) found that unlike long-term exposure, textisms demonstrated immediacy effects in improved spelling performance for 94 college-aged participants. They were given a spelling pretest, exposed to the test items as either correctly spelled words, incorrectly spelled words, or textisms and then given a spelling posttest containing the exact items as the pretest. Exposure to incorrectly spelled words lowered scores, while exposure to the correctly spelled words and textisms significantly improved spelling posttest scores.

Usage of textisms also has been positively linked with literacy in children (Wood *et al*., 2011; Plester *et al*., 2008; 2009; Coe and Oakhill, 2011; Kemp and Bushnell 2011; Kemp, 2010; Millen, 2003; Coe and Oakhill, 2011; Bushnell *et al*., 2011). Plester *et al.* (2009) found that the density of textism used in a text message composure exercise positively predicted word reading ability even after controlling for age, short-term memory, vocabulary, phonological awareness and the length of time the participant had owned a cell phone. Coe and Oakhill (2011) found that poorer readers used significantly fewer textisms when composing text messages than better readers. Moreover, Kemp and Bushnell (2011) found that children who could decipher messages written with textisms quickly scored higher in the areas of spelling, reading and non-word reading.

In addition, Plester *et al.* (2008) examined the relationship between text messaging behavior, knowledge of textisms and written language skills. Children who regularly text (n = 65) were given a measure of general literacy ability and then asked to translate one sentence from Standard English into text. Scores on the test of general literacy were negatively associated with text messaging frequency, but positively correlated to the density of textisms used when composing the single line of text. As a result, Plester and colleagues point out that there are two main foci of studies concerning text messaging behavior: The frequency with which children engage in text messaging and the density of textisms used while text messaging.

Plester *et al.* (2009) propose that in order for children to construct understandable textisms, they must have a working understanding of the orthographic rules of the English language. Further, the positive association between textism usage and literacy scores may be explained by the exposure to text gained by creating and reading textisms. Other authors argue that the usage of textisms can be considered both playful and fun (Crystal, 2006; Helderman, 2003). This 'ludic hypothesis' proposes that students' enjoyment of textism usage encourages them to expand their knowledge and usage of the English language, which is associated with an increase in standardized measures of literacy. Coe and Oakhill (2011) hypothesize that because better spellers use more textisms, this association may be explained by a greater phonological awareness possessed by better readers and spellers.

Although many studies have been done which focus on the relationship between textism usage and standard measures of literacy, there is no elementary school aged parallel for Powell and Dixon (2011) study on college-aged adults. The current study focuses on immediacy effects of direct exposure to textisms among 4th and 5th grade students. Participants were given a spelling pretest and then exposed to the test items as correctly spelled words, incorrectly spelled words, or textisms. The students were then

given a spelling posttest containing the same items as the spelling pretest.

The present study had several hypotheses. The first posited that exposure to correctly spelled words would have a positive effect on spelling posttest scores. The second stated that that exposure to incorrectly spelled words would have no negative effect on spelling posttest scores. These first two hypothesis are based on the results obtained in similar studies (Dixon and Kaminska, 2007; Bradley and King, 1992). The third was that exposure to either group of textisms would have no effect on spelling posttest scores.

2. MATERIAL AND METHODS

2.1. Participants

Participants were recruited from four elementary schools (three public, one private) in rural South Carolina. Participants were 136 students in the fourth (n = 64) and fifth (n = 72) grades and ranged in age from nine to twelve years old (M = 10.26). Consent of parents and assent of participants were obtained. Participants were offered peanut-free candy as an incentive for participating. All American Psychological Association and Helsinki Declaration Ethical standards were upheld in this research, which was approved by the Institutional Review Board.

Of the students recruited, 89% had access to a cell phone and 62% of them owned their own cell phone. For those owning a cell phone, the average age for receiving their first phone was eight years and five months. The majority of students (85%) were familiar with the process of texting (which was defined as having sent at least one text message). When asked to rate their enjoyment of text messaging on a scale of 1 to 10, the students who were familiar with the process of text messaging gave it an average score of 8. Nearly half (49%) reported possessing their own email address and 33% are members of a social networking site. Students in the fifth grade did not have greater access to cell phones, $F(1,133) = 2.520$, $p<0.115$), or own more cell phones than their fourth grade peers, $F(1,132) = 0.045$, $p<0.833$).

2.2. Design

Based on Powell and Dixon (2011), a test-retest design was used for this study, with a spelling pretest and posttest comprised of thirty words. A 15 min distracter test was presented between the pretest and the exposure phase and posttest. Four types of exposure conditions were used in which participants were exposed to the test items as, correctly spelled word (Group 1), an incorrectly spelled word (Group 2), a Similar Textism (test items as textisms similar in form to the original word as per Katz and Frost, 2001; Group 3), or as a Varying Textism (letter/number homophones, accent stylizations and nonconventional spellings; Group 4).

2.3. Instruments

To measure pretest and posttest spelling ability, a 30 question spelling test was administered. The first 20 words were simple words expected to be well known to fourth and fifth grade participants. They were selected from the Dale-Chall List of 3000 Words (Dale and Chall, 1948) and from the list of common textisms referenced by Thurlow (2003). Ten words were also included in order to measure prior spelling ability, chosen from the Scripps National Spelling Bee List (Scripps, 2004).

During the exposure phrase, students were either exposed to the first 20 test items as a correctly spelled word (Group 1), an incorrectly spelled word (Group 2), a Similar Textism (Group 3), or as a Varying Textism (Group 4). The textisms chosen for the exposure phase are frequently used textisms based off the tables created by Thurlow (2003). In his original study, Thurlow divided textisms into ten different categories based on the type of deviation from the traditional spelling for each word. The two categories of textisms used in the present study reflect seven of the original ten categories; the categories ‘g clippings’ and ‘other clippings’ were combined as part of the Similar Textism category; the categories ‘acronyms,’ ‘initialisms’ and ‘misspellings’ were not used due to the fact that they are not distinct enough for participants to recognize as textisms.

2.4. Procedures

Participating students were divided into groups of approximately 17 in order to allow the researchers to monitor child behavior. After a background survey was administered, participants completed adictated spelling pretest. The spelling test was given in a group setting, with each word first being stated aloud, read in a defining sentence and then restated once again for

clarification. The member of the research team administering the test moved on to the next test item after each participant had completed writing the word, an approximate time of 12 seconds. At the completion of the spelling pretest, participants engaged in a fifteen minute distracter test concerning the proper use of textisms in formal and informal situations.

The exposure phase was completed by a researcher assistant holding up a one inch, three ring, black academic binder. Each of the items was printed in the center of an 8.5 by 11 inch white piece of computer paper, in 100 pt. Calibri font and held at the front of the classroom in order to provide all participants an opportunity to see clearly. This method for exposure was based on methods chosen in similar studies (Powell and Dixon, 2011; Dixon and Kaminska, 1997). Each sheet was placed into a sheet protector inside of the binder. During the exposure phase, a member of the research team would call out the word and participants were asked to look at each word silently for seven seconds. Immediately following the completion phase, participants completed a spelling posttest containing the same items as the spelling pretest. The procedure for the posttest was identical to the pretest procedure.

3. RESULTS

Data were entered and validated using a 1/15 randomized extraction recheck method and then analyzed using SPSS v 21. Spelling tests were each graded twice in order to ensure accuracy of scores. The chart below displays the mean scores and standard deviations for each of the four groups.

The four groups were first compared for prior spelling ability using a one way ANOVA. Although the researchers included students from multiple schools, classrooms and grades in each of the exposure groups, the groups differed significantly in prior spelling ability, $F(3,132) = 12.444$, $p<0.0001$ (**Table 1**). A repeated measures ANOVA was calculated with time as the within-groups measure and exposure type as the between-groups measure showed that there was a significant interaction between exposure type and test scores, $F(3,132) = 5.483$, $p<0.001$.

To standardize the results, a difference score was calculated for each of the students by subtracting their pretest score from their posttest score. The means and standard deviations for the four groups' difference scores are shown below in **Table 2**.

In order to compare each of the groups' individual results, a series of individual t-tests was conducted for each of the four groups. The participants who were exposed to correctly spelled words showed significant improvement on posttest scores $t(35) = 5.399$, $p<0.0001$. The participants exposed to incorrectly spelled words did not show a significant decrease in their posttest scores $t(29) = -1.96$, $p<0.060$. Participants exposed to Similar Textisms did not show significant changes from pretest to posttest scores, $t(28) = -0.064$, $p<0.950$ and neither did the participants exposed the Varying Textisms, $t(40) = -1.39$, $p<0.172$.

4. DISCUSSION

Traditional literature research on the effects of exposure to correct and incorrect spellings for children has found that children can benefit from exposure to correctly spelled words while not significantly decreasing in spelling ability after exposure to incorrectly spelled words (Dixon and Kaminska, 2007; Bradley and King, 1992). The principle aim of this study was to investigate whether exposure to textisms would impact immediacy effects on spelling ability in fourth and fifth grade students as they do for young adults (Powell and Dixon, 2011).

Table 1. Means and standard deviations

Exposure type	Correctly spelled words	Incorrectly spelled words	Similar textisms	Varying textisms
Pretest score mean (SD)	15.64 (3.506)	18.30 (2.020)	16.83 (2.139)	17.54 (2.158)
Posttest score mean (SD)	17.06 (2.808)**	16.87 (4.485)*	16.86 (3.583)	16.83 (4.283)

** Statistically significant; * Approaching statistical significance

Table 2. Mean difference scores

Exposure type	Correctly spelled words	Incorrectly spelled words	Similar textisms	Varying textisms
Difference score mean (SD)	1.42 (1.574)	-1.43 (4.006)	0.03 (2.921)	-0.71 (3.258)

Two control groups aided in the exploration of veridical spelling and exposure. The first (correctly spelled words) group's results determined that a short exposure time lead to significant improvement on posttest results, similar to Bradley and King (1992) findings that exposure to correct spellings has a positive impact on spelling ability and that these effects are durable. The second (incorrectly spelled words) group showed decrease, but the decrease was non-significant. While most of the participants in this second group showed a slight drop for spelling pretest to posttest scores, a few students showed significant drops in scores (six or more of the twenty words). A similar effect was recorded for children by Bradley and King (1992) and for adults by Dixon and Kaminska (1997), but the reason for this difference among children is unknown. Caisley (1982), indicating that students differing in spelling ability might respond differently to proofreading exposure tasks, but this effect also remains unexplained.

Students in the Varying Textisms group decreased in performance from spelling pretest to posttest, while those in the Similar Textisms showed almost no change resulting from the exposure phase. It is possible that children in the Similar Textism group were able to derive more orthographic information from the exposure phase than the children in the Varying Textisms group and therefore performed better on post spelling tests, which supports Bradley and King (1992) theory that exposing children to phonetically plausible misspellings provides them with orthographic information they might not have initially remembered.

The measured results of textism exposure are contradictory to the beliefs presented by the media in many news articles and held by many parents and teachers (Thurlow, 2006). While exposure to textisms does not have positive impact on children similar to the positive benefits found for adults, such exposure does not have negative impact on spelling ability. Textism usage has also been shown to be positively linked with standard measures of literacy in studies done in the past decade (Wood *et al*., 2011; Plester *et al*., 2009; 2008; Coe and Oakhill, 2011; Kemp and Bushnell 2011; Kemp, 2010). Plester *et al.* (2009). Current debates on the appropriateness of allowing children to use cell phones for texting on a regular basis would benefit from including data found in this study and other similar studies.

Several confounding variables were found when analyzing the results of this study. Three of the four schools which allowed students to participate engaged in a practice known as "tracking," in which they sort children into classrooms based on their prior spelling ability. Two of these schools also required the students be divided into experimental groups based on pre-established classroom divisions. In order to maintain continuity throughout the study, students at all four schools were divided into groups based on classroom. Each classroom of students that had returned all of their consent forms was placed in one of the four experimental groups. Eight classrooms of students participated in the study (four fourth grade classrooms and four fifth grade classrooms), so each experimental condition contained one classroom from each grade level. In order to control for the effects of tracking, classrooms for each of the grades were randomly assigned to experimental conditions, but the differences between pretest scores were still significantly different for the four groups.

Future research could explore further questions about textisms. Previous spelling research has compared the effects of having children perform various tasks during the exposure phase. It has been shown that students who perform more involved tasks (such as writing the words) are more affected by the exposure phase than those who are given a less involved task (e.g., reading the word in a story; Dixon and Kaminska, 2007). To continue this research, the effects of varying degrees of exposure to textisms on spelling ability in both children and adults should be measured. It would also be beneficial to examine the effects of long term exposure to textisms, as this research only presents a snapshot of the effects of textism exposure on spelling. Although a ten-week study found that textism usage was significantly positively related to spelling test scores (Wood *et al*., 2011), studies concerning long term effects of textism usage have yet to be published.

5. CONCLUSION

From these findings, it can be concluded that factors other than the use of textisms influence spelling abilities among elementary school children, at least in the short-term. Exposure to textisms appears to have neither a positive nor a negative effect on spelling ability in children.

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7. REFERENCES

Bradley, J.M. and P.V. King, 1992. Effects of proofreading on spelling: How reading misspelled and correctly spelled words affects spelling accuracy. J. Read. Behav., 24: 413-432. DOI: 10.1080/10862969209547789

Brown, A.S., 1988. Encountering misspellings and spelling performance: Why wrong isn't right. J. Educ. Psychol., 80: 488-494. DOI: 10.1037/0022-0663.80.4.488

Bushnell, C., N. Kemp and F.H. Martin, 2011. Text-messaging practices and links to general spelling skill: A study of Australian children. Austr. J. Educ. Dev. Psychol., 11, 27-38.

Caisley, K., 1982. Evaluation of Implementing Proofreading into the School Spelling Program. 1st Edn., Educational Research Institute of British Columbia, Vancouver, BC, Canada, pp: 86.

Coe, J.E.L. and J.V. Oakhill, 2011. 'Txtn is ez f u no h2 rd': The relation between reading ability and text-messaging behaviour. J. Comput. Assisted Learn., 27: 4-17. DOI: 10.1111/j.1365-2729.2010.00404.x

Crystal, D., 2008. Txtng: The Gr8 Db8. Oxford University Press, Oxford, ISBN-10: 0199571333, pp: 256.

Dale, E. and J. Chal, 1948. A formula for predicting readability. Educ. Res. Bull., 2: 1-20.

Dixon, M. and Z. Kaminska, 1997. Is it misspelled or is it mispelled? The influence of fresh orthographic information on spelling. Read. Writ. 9: 483-498. DOI: 10.1023/A:1007955314533

Dixon, M. and Z. Kaminska, 2007. Does exposure to orthography affect children's spelling accuracy? J. Res. Read., 30: 184-197. DOI: 10.1111/j.1467-9817.2007.00337.x

Duggan, M. and L. Rainie, 2012. Cell Phone Activities 2012. Pew Research Center Report

Gilbert, L.C., 1935. A study of the effect of reading on spelling. J. Educ. Res., 28: 570-576.

Helderman, R.S., 2003. Click by click, teens polish writing; instant messaging teaches more than TTYL and ROFL. The Washington Post.

Jacoby, L.L. and A. Hollingshead, 1990. Reading student essays may be hazardous to your spelling: Effects of reading incorrectly and correctly spelled words. Canad. J. Psychol., 44: 345-358. DOI: 10.1037/h0084259

Katz, L. and S.J. Frost, 2001. Phonology constrains the internal orthographic representation. Read. Writ., 14: 97-332. DOI: 10.1023/A:1011165407770

Kemp, N., 2010. Texting versus txtng: Reading and writing text messages and links with other linguistic skills. Writ. Syst. Res., 2: 53-71. DOI: 10.1093/wsr/wsq002

Kemp, N. and C. Bushnell, 2011. Children's text messaging: Abbreviations, input methods and links with literacy. J. Comput. Assisted Learn., 27: 18-27. DOI: 10.1111/j.1365-2729.2010.00400.x

Lenhert, A., 2012. Teens, smart phones and texting. Pew Research Center, Pew Internet and American Life Project. Pew Research Center, Washington, DC.

Plester, B., C. Wood and V. Bell, 2008. Txt msg n school literacy: does texting and knowledge of text abbreviations adversely affect children's literacy attainment? Literacy, 42: 137-144. DOI: 10.1111/j.1741-4369.2008.00489.x

Plester, B., C. Wood and P. Joshi, 2009. Exploring the relationship between children's knowledge of text message abbreviations and school literacy outcomes. Brit. J. Dev. Psychol., 27: 145-161. DOI: 10.1348/026151008X320507

Powell, D. and M. Dixon, 2011. Does sms text messaging help or harm adults' knowledge of standard spelling? J. Comput. Assisted Learn., 27: 58-66. DOI: 10.1111/j.1365-2729.2010.00403.x

Roberts, D.F., 2008. Trends in media use. Future Chil., 18: 11-37. DOI: 10.1353/foc.0.0000

Scripps, E.W., 2004. Scripps National Spelling Bee List.Cincinnati, OH, USA: TheE.W. Scripps Company.

Thurlow, C., 2003. Generation txt? The sociolinguistics of young people's text messaging.

Thurlow, C., 2006. From statistical panic to moral panic: The metadiscursive construction and popular exaggeration of new media language in the print media. J. Comput. Mediated Commun., 11: 667-701. DOI: 10.1111/j.1083-6101.2006.00031.x

Wood, C., E. Jackson, L. Hart, B. Plester and L. Wilde, 2011. The effect of text messaging on 9- and 10-year-old children's reading, spelling and phonological processing skills. J. Comput. Assisted Learn., 27: 28-36. DOI: 10.1111/j.1365-2729.2010.00398.x

Millen, N., 2003. Chronic fatigue Syndrome: A Sociological Perspective. In: Chronic Illness: New Perspectives and New Directions, Walker, C. (Ed.)., Tertiary Press, Croydon, pp: 206-220.

Appendix A. Word list used in study

Correctly spelled word	Incorrectly spelled	Similar textisms	Varying textisms
Another	anuther	nuther	anova
Birthday	birfday	bday	berthday
Coming	cumming	comin	cummin
Everyone	everyon	evron	every1
Fortune	fortoon	fortun	4tune
Have	haev	hav	av
Honey	honay	hon	hunee
Love	luve	lv	luv
Separate	seperate	sprt	seper8
Thanks	tanks	thx	thanx
Though	thoh	thou	tho
Tomorrow	tommorrow	morrow	2morrow
Tonight	tonite	tnite	2nite
Tuesday	toosday	Tues	2sday
Video	vedio	vid	vdeo
Waiting	wating	waitin	w8tin
Whatever	wutever	wtvr	wuteva
With	wiht	wit	wif
Without	witout	w/o	wivout
You	yu	u	ya