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Orthographic learning during reading: examining the role of self-teaching ☆

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Abstract

Thirty-four second grade children read target homophonic pseudowords (e.g., slurst/slirst) in the context of real stories in a test of the self-teaching theory of early reading acquisition. The degree of orthographic learning was assessed with three converging tasks: homophonic choice, spelling, and target naming. Each of the tasks indicated that orthographic learning had taken place because processing of target homophones (e.g., yait) was superior to that of their homophonic controls (e.g., yate). Consistent with the self-teaching hypothesis, we obtained a substantial correlation ($r = .52$) between orthographic learning and the number of target homophones correctly decoded during story reading. Hierarchical multiple regression analyses indicated that neither RAN tasks nor general cognitive ability predicted variance in orthographic learning once the number of target homophones correctly decoded during story reading had been partialed out. In contrast, a measure of orthographic

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knowledge predicted variance in orthographic learning once the number of targets correctly decoded had been partialed. The development of orthographic knowledge appears to be not entirely parasitic on decoding ability.

Keywords: Reading acquisition; Self-teaching; Orthographic learning; Orthographic knowledge; RAN

The self-teaching model of early reading acquisition (Jorm & Share, 1983; Share, 1995) posits that the orthographic representations necessary for fast, efficient, visual word recognition develop primarily as a function of phonological recoding (i.e., print-to-sound translation), and the opportunities to associate print with sound that it provides. According to Share (1999): "phonological recoding acts as a self-teaching device or built-in teacher enabling a child to independently develop the word-specific orthographic representations essential to skilled reading and spelling" (p. 96).

The self-teaching hypothesis is consistent with numerous studies that have shown that efficient phonological processing is a necessary, but not sufficient, condition for orthographic learning (e.g., Juel, Griffith, & Gough, 1986; Reitsma, 1989; Tunmer & Nesdale, 1985). That is, while virtually no child with deficient phonological processing skills develops reading ability with ease, some children with adequate phonological sensitivity lag behind in the development of word recognition efficiency. Thus, if phonological processing is a necessary but not sufficient condition for the development of adequate word recognition skill, this implies that there may be another cognitive "sticking point" for some children—that we may find a second critical locus of variance in word recognition skill. In fact, empirical work and theoretical speculation has raised the possibility that the ability to form, store, and access orthographic representations may be able to account for some of the residual variance in word recognition skills not explained by phonological factors (Barker, Torgesen, & Wagner, 1992; Cunningham & Stanovich, 1990, 1993; Stanovich & West, 1989) and that these two sources of variance contribute differentially to reading difficulties (Castles, Datta, Gayan, & Olson, 1999; Manis, Custodio, & Szeszulski, 1993; Stanovich, Siegel, & Gottardo, 1997; Treiman, 1984).

The major aim of the present study was to provide a direct test of the self-teaching hypothesis via a replication and extension of Share's (1999) recent study. He asked second graders to read aloud short texts containing embedded pseudoword targets. Three days later, target spellings were correctly identified more often, named more quickly, and spelled more accurately than alternate homophonic spellings. Additional experiments ruled out alternative explanations of this finding.

The evidence for the self-teaching hypothesis has been either indirect or anecdotal with the exception of Share's (1999) study. In his study, Share (1999) provided compelling evidence for the self-teaching hypothesis in a highly regular script—Hebrew orthography. The generalizability and application of these findings to a less shallow and more prevalent orthography, however, has yet to be examined. There is always the possibility that the mechanisms of self-teaching might vary across orthographies as has been found for some other variables with important associations in early reading acquisition (Wimmer, 1996; Wimmer, Mayringer, & Landerl, 2000). Whether the self-teaching hypothesis holds up in a very different and more irregular orthography was thus tested in the present study. There is reason to believe that orthographic learning is dependent upon phonological decoding even in a highly irregular but still fundamentally alphabetic script such as English (e.g., Ehri, 1992; Ehri & Saltmarsh, 1995; Perfetti, 1992; Reitsma, 1983, 1989; Share, 1995), even though phonological decoding is a more complex process in learning to read English as compared to Hebrew (see Share & Levin, 1999).

With the exception of Share's (1999) study in Hebrew and Reitsma's work in Dutch (Reitsma, 1983, 1989), previous examinations of the role of decoding in English orthographic learning have used individual words presented in isolation rather than connected text. Also, most investigations have either directly taught word pronunciations or provided explicit feedback to children during reading as to the correct pronunciation of words. If the self-teaching hypothesis applies to children's independent everyday reading of text, children should not be provided with outside assistance. Rather, they should be left to their own devices, such as making incorrect pronunciations of letter-strings, guessing or skipping words in their attempts to read connected text. In order to assess children's self-teaching abilities in their proper context, examination of this hypothesis within a naturalistic context (i.e., connected text and independent reading) is needed.

The present study also examined possible sources of variance in student's orthographic learning by including tasks tapping general cognitive ability, rapid automatized naming (RAN) ability, and orthographic discrimination ability. General cognitive ability is of course always a potential alternative explanation of any individual differences obtained in any type of learning task. Thus, its inclusion here will allow us to ascertain the specificity of any individual differences in orthographic learning resulting from self-teaching that we may obtain. The RAN tasks included here relate to a more specific hypothesis surrounding the issue of orthographic learning from self-teaching. The RAN variable has been linked both theoretically and empirically with individual differences in orthographic processing skill (Bowers & Wolf, 1993; Manis, Seidenberg, & Doi, 1999; Manis, Doi, & Bhadha, 2000; however, see Torgesen, Wagner, Rashotte, Burgess, & Hecht, 1997). Theoretically, Bowers and Wolf (1993) have argued that

> "slow letter (or digit) naming speed may signal disruption of the automatic processes which support induction of orthographic patterns, which, in turn, result in quick word recognition" (p. 70).

We will examine this conjecture by analyzing whether RAN can predict orthographic learning in the self-teaching paradigm after decoding accuracy during story reading has been partialed out. Such an analysis relates to the specificity of the RAN/orthographic processing relationship because, if confirmed, it would indicate that RAN is a predictor independent of decoding accuracy.

Method

Design

The tasks administered to the participants were of two types: (1) connected text with post-test assessments of orthographic learning; and (2) measures designed to assess a variety of cognitive skills that have been linked with early reading acquisition.

Participants

Thirty-four children (18 boys and 16 girls) from three second grade classrooms in a predominantly upper-middle class elementary school served as participants. Testing took place at the end of the second grade school year, during the months of May and June.

The self-teaching task

Ten short story texts (expository passages) were adapted from Share's (1999) Hebrew stories and translated to a version more appropriate for North-American English speakers. Two versions of each story were created and employed two alternate spellings of one of the following 10 pairs of homophonic pseudowords—yait/yate; slurst/slirst; stert/sturt; choom/chume; stoon/stewn; woat/wote; rupe/roop; beel/beal; kear/keer; and troe/trow. For each pair, half the sample saw one spelling, while the other half saw the alternative spelling. These homophones pairs were selected for the experimental study from a pilot study employing a candidate pool of 59 homophonic pseudoword pairs. We chose pseudoword pairs that displayed preference ratios as close as possible to 50:50 among a comparable group of 48 second grade students. In the present study, each target homophone appeared six times in the story. Apart from the different target homophone spellings, the two versions of each story were identical. Our texts ranged in length from 133 to 234 words (median length = 186) and were designed to present no difficulties for normal second grade readers. Each story was printed on a separate page. The 10 stories were randomly assigned to two sets: Stories 1–5 and 6–10.

The self-teaching task was based upon Share's (1999) design and administered on an individual basis in four separate sessions. During the first session children read five stories. Three days later, children participated in a second session in which they were administered three orthographic learning tasks (see descriptions below). After 4 days, children participated in a third session during which they read the remaining 5 stories. Again, 3 days later, children participated in the fourth session during which they were administered the three orthographic learning tasks.

Story reading. Children were asked to read the stories aloud. The only assistance provided by the experimenter was in reading the title of the story. The students did not receive any further help. If a student requested help identifying a word, they were instructed to try and read it by themselves. All sessions were audiotaped and the experimenter timed their story reading. After each passage, the students were asked three comprehension questions based upon the story (see Appendix A for example of stories and questions).

Target decoding accuracy score. The accuracy of the pronunciation of the target words was recorded online by the experimenter. An error was recorded if any change to the correct target pronunciation occurred. Independent analyses of the audiotapes was used to confirm the online scoring. Of the 60 possible correct pronunciations of the homophone targets (10 stories times 6 target words), the mean number of correct pronunciations was 44.4 ($SD = 12.9$; range = 13–60); thus the overall decoding accuracy for the target homophones was roughly 74.0%—indicating that most of the targets were successfully decoded when encountered in text. The raw number of correct pronunciations was used in the analyses that follow.

Orthographic learning tasks

Three separate tasks were administered individually (in the following order) to determine the extent to which new orthographic information had been assimilated three days later.

1. Homophonic pseudoword choice. Children were first asked a question to prompt their recall of the target homophone (e.g., "do you remember the name of the coldest town in the world?"). They were then shown four alternative spellings of the target homophone: (1) the original target spelling (e.g., yait); (2) the target homophone's homophonic alternative (e.g., yate); (3) a letter substitution alternative, in which a letter of the target homophone was replaced by a visually similar letter (e.g., yoit); and (4) a letter transposition alternative, in which two adjacent letters of the target homophone were transposed (e.g., yiat). The order of these alternatives was counterbalanced. Children were asked to circle the word that was the same as the name of the town/fruit/flower they had read about in the story 3 days ago. The child's score on this task was the total number of items correct (mean = 7.5, *SD* = 1.6, range = 4–10).

2. Spelling task. Children were asked to spell the target homophone of the name of the town/fruit/flower they had read about in the story 3 days previously. If the child could not recall the name of the target homophone, the experimenter provided the first sound (or blend) in the word. If the child was then able to recall the target homophone, they were asked again to spell it. If the child still could not recall the correct target, the experimenter provided the homophone, and then asked the child to spell it. Only exact replications of the target homophones were coded as correct and the metric we analyzed was the total number of items correct (mean = 7.0, *SD* = 2.1, range = 3–10). The number of homophonic spellings were also recorded.

3. Homophone naming task. The children were asked to name a series of pseudohomophonic words presented on a Macintosh LC475 computer monitor one word at a time. The target spellings, both original (2 exposures) and homophonic (2 exposures), were embedded in a list of 36 high frequency words, some of which appeared more than once (as in natural text). These stimuli were presented center screen, in a 24-point font size and remained visible until the child responded. There was a 2500-ms blank-screen interval between each stimulus presentation. The computer recorded latencies from stimulus presentation to speech-onset for each stimulus and the entire session was audiotaped so that reading accuracy could also be scored. In the analyses that follow, the metric we analyzed was the mean naming time for the target homophones. Metrics involving various difference and ratio scores (Allerup & Elbro, 1998) involving comparative target/homophone performance produced virtually identical results, but the difference scores were less reliable.

4. Orthographic learning composite score. An orthographic learning composite score was formed by taking the mean of the standard scores on the three orthographic learning tasks: homophonic pseudoword choice, spelling, and homophone naming (the latter standard score was multiplied by −1 because it is a reaction-time rather than an accuracy score).

Cognitive measures

Prior to the experimental sessions, a number of background reading and cognitive measures were administered to the students during several individual and/or group sessions. The standardized measures we administered were: the Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 1981), Raven Progressive Colored Matrices (RAVEN; Raven, 1962), Digit Span Subtest—WISC-III, and the Woodcock Reading Mastery Test (Word Attack Subtest). Raw scores were employed in the analyses that follow. A composite cognitive ability score was formed by first transforming the raw scores on the Raven, the PPVT, and digit span measures to z-scores. These standard scores were then averaged to obtain the cognitive ability composite score.

Additional cognitive measures that were administered were:

Rapid automatized naming tasks. The RAN tasks were individually administered tests of naming speed. Students were asked to read six 18×24 cards, two of each type of stimuli: colors, letters, or numbers. The first card contained 50 colored squares (five colors repeated ten times), the second 50 lower case letters (five letters repeated ten times), and the third 50 numbers (five numbers repeated ten times). Students were asked to name the colors/letters/numbers as quickly as they could. The participant's total response time for each card was recorded in seconds to the tenth of a second, and naming errors were recorded by the experimenter on a separate score sheet. Two trials of each card were administered to each student, and scores were averaged across the two trials. This task lasted approximately 5 min. The children's scores on this task were the mean total time to read the 50 stimuli (mean colors = 47.6, $SD = 9.8$; mean letters = 29.7, $SD = 5.0$; mean numbers = 31.4, 6.1). The mean number of errors was quite low (colors mean = .19, letters mean = .13, numbers mean = .07). In the analyses that follow, the metric we analyzed was the mean naming time for colors, letters, and numbers.

A RAN composite score was formed by taking the mean of the standard scores of the times on the three RAN tasks: colors, letters, and numbers.

Orthographic choice task. The orthographic choice task (Olson, Kliegl, Davidson, & Foltz, 1985) is a group administered measure of orthographic processing skill. Twenty-three pairs of phonologically similar letter-strings were presented to the children on a sheet of paper. Each pair contained one word and one pseudohomophone. The word pairs were: take–taik, gote–goat, sleap–sleep, hole–hoal, rume–room, snoe–snow, face–fase, hert–hurt, sheep–sheap, smoak–smoke, bowl–boal, cloun–clown, word–wurd, cote–coat, rain–rane, stoar–store, lurn–learn, nice–nise, scair–scare, skate–skait, true–trew, streem–stream, and wize–wise. The experimenter told the children that each pair of letter strings contained one word that was spelled correctly and one that was spelled incorrectly. They were then instructed to circle the correctly spelled word. This task lasted approximately 5 min. The child's score on this task was the total number of items correct (mean = 21.9, $SD = 1.8$, range = 16–23). The split-half reliability (Spearman–Brown corrected) was .86.

Results

Orthographic learning

As indicated in Table 1, 74.7% of the choices made on the orthographic learning task were choices of the target pseudohomophone. Only 12.9% of

Table 1
Performance on the three orthographic learning tasks

Tasks	Target	Homophone	Substitution	Transposition
Homophonic pseudoword choice (%)	74.7	12.9	6.5	5.9
	Target spelling correct	Homophonic spelling	Other	
Spelling–production (%)	70.3	13.5	16.2	
	Target	Homophone		
Homophone naming RT (latency in ms)	813	854		

the choices made were the homophonic alternative of the target pseudohomophone. The substitution and transposition alternatives were chosen only 6.5% and 5.9% of the time, respectively. That the target choice exceeded that of all of the alternatives by a factor of almost three to one indicates that orthographic learning on the task was evident. A particularly important indication that orthographic learning had taken place was the fact that the target was chosen over the homophonic alternative by a factor of over five to one.

On the spelling task, only exact reproductions of target homophones were accepted as correct. As Table 1 indicates, 70.3% of the spellings were identical to those of the target pseudohomophone. In contrast, only 13.5% of the spellings mirrored that of the homophonic control (16.2% of the spellings indicated some other spelling error). Thus, orthographic learning was indicated by the fact that the target was chosen over the homophonic alternative by a factor of over five to one.

On the post-test homophone naming task, each child read a total of 20 targets (10 targets each presented twice), and 20 homophone foils. Only fully accurate pronunciations were accepted as correct. There was no significant difference in the pronunciation accuracy of either the original spelling or its alternative spelling (targets = 82%; homophones = 80%). As Table 1 indicates, the mean pronunciation time for the target pseudohomophone was 813 ms and the mean pronunciation time for the homophonic control was 854 ms. An examination of naming latencies [1] revealed that pronunciation times were significantly faster (by 41 ms) for target homophones whose

[1] Latency scores (means and standard deviations) were based on the median of individual children's reaction times for correct pronunciations, calculated separately for targets and homophones. Trials lost to equipment failure were 13% for targets and 11% for foils. The average number of valid reaction times per child in the overall analysis was just over 17 (of 20) for both types of items.

spellings had been encountered while reading text (the targets) than they were for the alternative homophonic spellings, $t(33) = 2.64$; $p < .025$.

Predictors of orthographic learning

Table 2 presents the relationships among the major variables in the study. The critical variable is the first one in the table—the orthographic learning composite score. According to the self-teaching hypothesis, the number of targets in the passages correctly decoded should be correlated with the composite orthographic learning score. The substantial correlation obtained ($r = .52$) confirmed this key self-teaching prediction. The orthographic learning composite also displayed a strong correlation ($r = .58$) with a general measure of decoding ability (the Word Attack subtest of the Woodcock). The orthographic learning composite score displayed a correlation of $-.35$ ($p < .05$) with the RAN composite score. Orthographic learning displayed no correlation at all with general cognitive ability ($r = .03$).

In a series of regression analyses, we examined which individual difference variables predicted the degree of orthographic learning, building upon the basic finding—one consistent with the self-teaching theory—that the proportion of target homophones correctly decoded in the texts was a substantial predictor of orthographic learning. The hierarchical regression analyses reported in Table 3 build on this fundamental relationship. The regression analyses reported there examined the critical question of whether learning in this paradigm is due *solely* to target decoding accuracy, or whether other variables such as general learning ability, rapid naming, or prior orthographic knowledge can account for significant variance in orthographic learning once target decoding accuracy has been controlled.

Thus, we conducted three separate hierarchical regression analyses to examine the relative contribution of cognitive ability, rapid naming, and prior orthographic knowledge to children's orthographic learning due to self-teaching once target decoding accuracy had been partialed out. The first analysis (see Table 3), revealed that after controlling for target decoding accuracy, general cognitive ability did not predict orthographic learning. Cognitive ability is always a strong alternative hypothesis in a paradigm that includes some type of learning. But the results of this analysis suggest that orthographic learning has a level of specificity that goes beyond general learning.

The RAN composite score did have a significant zero-order correlation with orthographic learning composite (the overall indicator of the amount of orthographic learning)—a finding that is consistent with the model put forward by Bowers and Wolf (1993). However, the more critical issue is whether rapid naming contributes to orthographic learning in this paradigm after we have controlled for successful decoding. The second analysis revealed that rapid naming did not independently predict orthographic

Table 2
Correlations between orthographic learning measures, target decoding accuracy, and other cognitive measures

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Orthographic learning measures															
1. Orthographic learning composite															
2. Homophonic choice	.82														
3. Spelling	.89	.70													
4. Homophone naming target RT	−.72	−.28	−.47												
Story reading performance															
5. Target decoding accuracy	.52	.39	.48	−.39											
General ability measures															
6. PPVT	−.09	−.25	.03	−.01	−.17										
7. Raven	−.15	−.19	−.13	.03	−.01	.11									
8. Digit span composite	.28	.24	.04	−.39	.23	−.02	−.08								
9. Cognitive ability composite	.03	−.12	−.04	−.22	.03	.62	.59	.52							
RAN measures															
10. RAN colors	−.23	−.18	−.11	.26	−.40	−.27	−.11	−.45	−.47						
11. RAN numbers	−.37	−.30	−.23	.37	−.35	−.03	.05	−.30	−.16	.68					
12. RAN letters	−.36	−.25	−.21	.42	−.26	−.08	−.03	−.45	−.33	.68	.79				
13. RAN composite	−.35	−.27	−.20	.39	−.38	−.14	−.04	−.44	−.36	.88	.91	.91			
Reading measures															
14. WJ word attack	.58	.32	.53	−.56	.52	.11	.01	.19	.18	−.27	−.37	−.29	−.34		
15. Orthographic choice	.57	.34	.51	−.54	.26	.40	.26	.21	.49	−.37	−.41	−.30	−.40	.42	
Mean	0.0	7.5	7.0	813	44.4	34.4	18.4	13.1	0.0	47.6	31.4	29.7	0.0	31.0	21.9
SD	0.0	1.6	2.1	187	12.9	3.6	3.6	2.6	0.0	9.8	6.1	5.0	0.0	5.4	1.8

Correlations greater than .33 are significant at the .05 level.

Table 3
Hierarchical regression analyses predicting orthographic learning composite score

Step variable	R	R^2 change	F to enter	Final β	Final F
1. Target decoding accuracy	.520	.271	11.88**	.520	11.49**
2. General ability comp	.521	.000	0.01	.012	0.01
1. Target decoding accuracy	.520	.271	11.88**	.451	7.75**
2. RAN composite	.548	.029	1.29	−.184	1.29
1. Target decoding accuracy	.520	.271	11.88**	.401	8.84**
2. Orthographic choice	.688	.202	11.87**	.465	11.87**

** $p < .01$.

learning after target decoding accuracy was partialed. An identical analysis was conducted using as the RAN composite score only letter and number RAN (that is, eliminating color naming from the composite score). This alternative composite score also failed to reach significance in the hierarchical analysis (variance explained = .052, $F(1,31) = 2.39$, $p > 1$), however it did account for more unique variance. This potential relationship may deserve further study.

The results of the first two regression analyses suggest that orthographic learning *might* occur solely as a function of decoding accuracy during story reading. However, the third analysis displayed in Table 3 revealed that orthographic knowledge predicted a significant amount of variance in orthographic learning, over and above the contribution of target decoding accuracy. This finding demonstrated that learning in this task was not just a function of successful decoding during the reading trials, but depended on a pre-existing psychological or processing characteristic that the child brought to the task, namely prior orthographic knowledge.

Discussion

In the present study, we found that second grade students demonstrated robust evidence of orthographic learning three days after they were exposed to novel English words in text, under conditions that simulated the self-teaching that is expected to occur in normal everyday reading contexts. Children were able to more quickly and accurately identify, name, and reproduce these homophones, thus replicating Share's (1999) study and extending his findings to a different and less transparent orthography.

Not only did the present study demonstrate large differences between the target homophones and homophone controls, but we also obtained a substantial correlation ($r = .52$) between orthographic learning and the number of target homophones correctly decoded during story reading, just as would be expected from the self-teaching hypothesis. Although the present study did not conduct controlled experiments for visual learning, Share's (1999) study (experiments two and three) demonstrated that word learning in this paradigm cannot be attributed simply to visual exposure.

According to the self-teaching hypothesis, orthographic learning is achieved primarily by way of print-to-sound translation. Our findings addressed the question of whether the degree of success at ongoing print-to-sound translation in a specific set of texts was the sole contributor to the amount of orthographic knowledge derived from those texts or whether there were individual differences in reading-related processing characteristics that mediated the amount of orthographic knowledge induced.

In any study of learning, general cognitive ability must always be considered to be an alternative hypothesis for any individual differences obtained. We were surprised to find that in fact this variable explained no unique variance in orthographic learning once target decoding accuracy had been controlled. Because Bowers and Wolf (1993) had posited a key independent link between RAN and orthographic processing, we examined the ability of the RAN composite variable to explain additional variance but found that it was not a unique predictor. Somewhat more variance was explained using a RAN composite score containing only letters and numbers but, again, this did not attain statistical significance in a hierarchical analysis.

Whatever the effect of RAN in producing individual differences in orthographic knowledge, at least in this study that effect appeared to be masked and/or overwhelmed by the potent effects of decoding accuracy. Our results are also consistent with the findings of Torgesen et al. (1997) who, in a study of second-grade to fourth-grade growth in reading subskills, found that after word reading accuracy in second grade was partialed out, RAN did not predict fourth-grade orthographic processing skill. It should be noted, though, that the predictive potency of the RAN variable has tended to be larger in studies where reading disabled children were disproportionately represented (Wolf, 1999; Wolf & Bowers, 1999) as opposed to studies such as this one which utilize samples throughout the range of reading ability.

Unlike general cognitive ability and the RAN composite, the orthographic choice task *did* explain unique variance in orthographic learning as a result of self-teaching. Note that the orthographic choice task taps *already existing* orthographic knowledge whereas the orthographic learning composite score reflects knowledge gained from exposure to the *particular* targets during *these* reading sessions. Thus, the ability of the orthographic choice task to predict unique variance means that previous success at inducing orthographic knowledge predicts success at inducing such knowledge from *these* exposures, *once decoding accuracy has been controlled*. In sum, the development of orthographic knowledge appears to be not *entirely* parasitic on decoding ability. Exactly what this orthographic skill is continues to be a focus of much research and debate in the field (e.g., Barker et al., 1992; Berninger, 1994; Compton, 2000; Cunningham, Perry, & Stanovich, 2001; Cunningham & Stanovich, 1990, 1993; Ehri & Saltmarsh, 1995; Manis, 1985; Manis et al., 2000; Reitsma, 1983, 1989; Venezky, 1999). Given the present results, it does appear to be something more than just print exposure because that was controlled explicitly in the experiment, and target decoding accuracy was controlled statistically.

Appendix A. Sample story text and comprehension questions

The coldest place in the world

North of Greenland is a place they say is the coldest place in the world. The name of the city is Yait. In Yait there is snow and ice all year round. The temperature in winter is always around 0° and it is dark most of the day. There is always a cold wind blowing from the north. But there are also some good things about Yait.

You don't have to hurry to put your food in the refrigerator to keep it cold. And there's always lots of ice for your drinks. In summer there is sunlight all day and all night, so you can go skiing and skating anytime you want, even at night. In Yait you won't have to put on sunscreen when you go outside because the sun is never too hot. And there are no flies in Yait to worry about. There is also a lake that is always frozen, so you can't ever fall in. But most of all, the people are very nice and friendly.

Would you like to live in Yait?

Comprehension questions:

1. Name one activity you can do in this city?
2. Name one advantage of living in this cold city?
3. What are the people like in this city?

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