



EFFECTS OF LISTENING/READING COMPREHENSION AND MORPHOLOGICAL AWARENESS ON FIRST GRADERS' WRITING TO DICTATION: A COMPARISON OF THE EFFECT OF MEMORIZATION

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ABSTRACT

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The purpose of this study was to determine whether the cognitive abilities of listening and reading comprehension and morphological awareness affect children's writing to dictation. Data were collected from 194 first-grade elementary schoolchildren in South Korea on the effects of repetitive practice and memorization by comparing impromptu and one semester's regular dictation tests. The results first revealed that spelling, spacing, and punctuation were highly correlated with the three cognitive abilities in the impromptu writing to dictation, but far less in the regular dictation test. Second, it was found that children's listening and reading comprehension and morphological awareness influenced their spelling, while reading comprehension and morphological awareness affected spacing and punctuation significantly in the impromptu dictation test. However, in the case of the regular dictation test, which involved memorization, the number of significant factors was small, and final explanatory power of those cognitive abilities was much smaller.

Contribution/Originality: This study demonstrates that cognitive abilities of students (reading comprehension, listening comprehension, and morphological awareness) affect writing to dictation. In addition, impromptu writing-to-dictation tests revealed the limited effect of memorization on writing skills.

1. INTRODUCTION

Writing, like reading, is an integral part of learning. Writing encompasses higher-level cognitive processes that involve such elements as visual memory and shape and phonemic recognition (Alber & Walshe, 2004; Nies & Belfiore, 2006; Van Hell, Bosnian, & Bartelings, 2003). In fact, cognitive development in children during the initial stages of learning to write is an important research topic.

Being the basis of all learning, literacy is crucial for school-aged children, and a good level of spelling is particularly important (Berninger, 2000; Choi, Kim, Yun, & Sung, 2011; Kim, 2009). In general, students tend to struggle with spelling and conventional writing, though, during the alphabetic stage (Guimaraes, 2013); however,

failing to acquire solid writing skills during their first years at elementary school will inevitably lead to further challenges in their future learning (Kim, 2003).

Learning to spell is often referred to as writing to dictation in elementary school curricula (Chun, Im, & Kim, 2001), but its value in education has been underestimated until recently, having been primarily a measure of literacy among school-aged children. For instance, students' writing to dictation is assessed by in-class exams, particularly in Korea, with teachers setting dictation sentences for students to practice and memorize beforehand at home. Therefore, this study aims to determine the limit to memorization for dictation and the influence of the cognitive skills required for writing, thereby reassessing the value of dictation as a learning method.

Dictation is an integrated teaching method used to develop a learner's conventional writing skills (Kwon, Kim, & Byun, 2010), improving their knowledge of punctuation, grammar, and spelling. Although many studies have focused mainly on spelling, such skills as spacing and punctuation are also essential in assessing the development of writing skills (Bae, 2015).

Most studies on dictation examine the relationship between spelling ability and phonological awareness (Ball & Blachman, 1991; Das, 2001; Lerner, 2000; Rivers, Lombardino, & Thompson, 1996; Wimmer, Mayringer, & Landerl, 2000), and previous findings have shown that alphabetical knowledge and grapheme-phoneme correspondence affect spelling ability (Masterson & Crede, 1999). In addition, since writing to dictation involves immediately writing what is heard, it is argued that working memory plays an important role in dictation skills (Virginia, Abbott, Nagy, & Carlisle, 2010). However, while past studies have revealed alphabetical knowledge, phonological awareness, and working memory correlate with spelling or writing to dictation, their relationship to the understanding of spoken language (i.e., listening comprehension) has not been fully explored.

Contrary to expectations, children who practiced writing at home the most to prepare for dictation at school achieved lower scores and there was no improvement in other cognitive abilities (Choi, Jun, & Song, 2018). This suggests that repetitive practice and memorization are ineffective, possibly due to individual differences in children's cognitive abilities. In-classroom teaching of dictation, therefore, should focus on cognitive factors that affect writing, such as listening, reading, and morphological awareness, rather than merely repetitive practice (Al-Jarf, 2005). Consequently, this study aims to determine whether children's comprehension through listening or reading and morphological knowledge reflect their writing-to-dictation abilities.

First, listening skills are vital for learners to be able to understand the meaning of spoken language to become proficient in writing to dictation (Habibi, Nemati, & Habibi, 2012). Such listening comprehension is a cognitive ability that involves three simultaneous sub-processes of selecting, organizing, and interpreting information (Cho, 2003). Although listening comprehension is relatively overlooked in native language learning, teachers often disregarding it as an abstract process (Chastain, 1988), it is well studied in second, or foreign, language learning: the role of listening comprehension in writing to dictation has been confirmed for university students studying English as a Foreign Language (EFL) (Al-Jarf, 2005; Habibi et al., 2012). Thus, it is necessary to investigate whether listening comprehension is also significant in writing to dictation for children learning their native language.

Second, of the two cognitive processes involved in reading, decoding has been studied more often than comprehension in relation to writing in the early stages. The ability of decoding has been linked to writing to dictation (Søvik, Samuelstuen, Svarva, & Lie, 1996; Yerdon, 1994), while comprehension has been found to affect the spelling skills of elementary school students (Mommers & Boland, 1987), suggesting that the relationship between reading and spelling encompasses more than the simple decoding of words. As the connection between reading comprehension and writing is evident at sentence level (Straw & Schreiner, 1982), it is possible that the level of children's reading comprehension may affect writing to dictation.

Third, more attention is now paid to morphological awareness in the development of writing (Apel, 2014). Carlisle (1995) defined morphological awareness as a "conscious awareness of the morphemic structure of words

and their ability to reflect on and manipulate that structure,” and previous studies have shown that morphological awareness helps improve young children’s spelling (Apel, Wilson-Fowler, Brimo, & Perrin, 2012; Berninger. et al., 2010; Bourassa & Treiman, 2008; Goodwin & Ahn, 2013; Green et al., 2003; Guimaraes, 2013; McCutchen, Green, & Abbott, 2008; Walker & Hauerwas, 2006). Students taught about word formation exhibited better writing skills in dictation (Cho, 2003), while those with more morpho-syntactic awareness demonstrated both better spelling and use of punctuation (Bryant, Nunes, & Bindman, 2000). As a result, this study will focus on the formal (i.e., structural) aspects to confirm the effect of morphological awareness on young children’s writing to dictation, including their use of spacing and punctuation.

While previous studies have largely concentrated on the English language (Babayigit & Stainthorp, 2010), research on other languages has been increasing, all providing evidence that writing ability is influenced by the transparency of the writing system (Caravolas, Hulme, & Snowling, 2001; Nikolopoulos, Goulondris, Hulme, & Snowling, 2006). The Korean alphabet, Hangeul, is regarded as a transparent, or shallow, transliterated language (Seymour, Aro, Erskine, & Network, 2003). In examining Korean writing to dictation, this study will thus contribute comparable findings to the existing literature in a language other than English.

Due to both parents’ zeal for education and Hangeul’s scientific characteristics, most children in Korea will have learned to write by the age of six (Lee, Park, & Kim, 2017), enabling writing to dictation to be practiced in by first as well as second graders. However, rather than using dictation as a teaching method, teachers tend to only use it for assessing their students’ literacy skills: dictation sentences are distributed for children to practice in advance of tests throughout the semester.¹ Despite changes to policy requiring elementary schools to effect conventional literacy education, many young children practice writing to dictation in kindergarten.

The purpose of this study is to determine the cognitive abilities that influence writing to dictation among first graders, focusing on the differences between regular dictation through memorization and impromptu dictation. The following research questions will be addressed:

1. Are listening and reading comprehension and morphological awareness correlated with writing to dictation, as shown by spelling, spacing, and punctuation in impromptu and regular tests?
2. If so, do listening and reading comprehension and morphological awareness contribute to spelling, spacing, and punctuation in writing to dictation in impromptu and regular tests?

2. MATERIALS AND METHODS

2.1. Participants

Data were collected from 194 first graders in 8 classes at public elementary schools of Seoul and Gyeonggi Province, South Korea. There were 104 boys (53.6%) and 90 girls (46.4%), with an average age of 83.34 months (around 6 years and 11 months old). Among their parents, 74.7% of mothers and 80.4% of fathers had received a university-level education, while 50% of these families reported an average monthly income of 3–6 million won (2,630–5,260 USD) and 39.2% reported relatively higher incomes. Therefore, the target population in this study is middle and upper middle class families residing in the metropolitan area.

2.2. Research Materials

Ten sentences were extracted from the first-grade integrated textbooks, *Spring*, *Summer*, *Family*, and *School*, for the impromptu dictation test, in which students were scored for spelling, spacing, and punctuation. Hangeul is the only alphabetic syllabary in the world (Taylor & Taylor, 1995), in which Korean graphemes are displayed as a combination of syllables; thus, students’ writing to dictation is assessed according to the accuracy of each syllable. Spacing refers to the correct spacing of words in a sentence, and like other languages, Korean uses spaces between words, with 1 point awarded for each correct space; however, students often misunderstand spacing for various

¹In this study, “regular dictation (test)” refers to this type of test, as opposed to “impromptu dictation (test).”


word classes, such as postpositional particles, compound nouns, and dependent nouns. Finally, punctuation includes periods, commas, and question and exclamation marks, the correct use of which scored 1 point.

A comparative analysis was performed for the results of the impromptu and regular dictation tests. Teachers had conducted the latter once or twice per week in each class over one semester, extracting their dictation sentences from the Korean language textbook and distributing them in advance for students to practice at home. Students' dictation notebooks were collected, scanned, and then reassessed by the method used for the impromptu test.

Listening comprehension and morphological awareness were examined using Lee et al.'s (2015) standardized Language Scale for School-Aged Children (LSSC). The listening comprehension test consisted of three simple and seven complex sentences that students were asked to listen to and then choose one picture from four possibilities that correctly depicted the content of each sentence. The morphological awareness test comprised 10 sentences in each of which students were asked to correct the grammatical errors, which existed within the form (e.g., tense ending, suffix, or postpositional particle) rather than arrangement of the words. Having listened to a sentence, students were awarded 1 point for correcting the error and rewriting the morphological composition accurately.

Reading comprehension was analyzed using Kim's (2000) standardized Basic Academic Skills Assessment (BASA) for reading that evaluates students' ability to select the appropriate vocabulary in a given context after reading and understanding the meaning of a paragraph. Students were asked to quietly read some text for three minutes and then choose the most appropriate word from three possibilities to fill in the blank. Examples of the assessment tools, score ranges, and reliability values are presented in Table 1.

Table-1. Examples of assessment tools and their reliability.

Test	Example	Range	Cronbach's α
Impromptu Dictation	A small seed fell on the ground.	0-100 (converted)	Not applicable
Listening Comprehension	The car is bigger than the ship and the ball is the biggest. 	0-10	0.841
Reading Comprehension	So boys play with boys, and (①women/②plays/③girls) play with girls.	0-23	0.89
Morphological Awareness	My dad lost a doll to buy. (I) lost the doll that my father <u>will buy</u> (<i>sajun</i>). → I lost the doll that my father had <u>bought</u> (<i>sajul</i>).	0-20	0.885

Source: Basic Skills Assessment: Reading (Kim, 2000); Language Scale for School-Aged Children (Lee et al., 2015).

2.3 Research Process

Each school was visited to explain the purpose of the study to the teachers and to distribute demographic survey questionnaires and consent forms to the parents; a second visit was made to collect the consent forms and questionnaires, as well as students' dictation notebooks for one semester, which were scanned and reassessed. For consistency, clarity, and accuracy, a professional female voice actor recorded the research test instructions and dictation sentences that were repeated twice. Four tests were administered to each class, listening comprehension first, followed by impromptu dictation, then reading comprehension, and finally morphological awareness, taking a total of 30 minutes. All the test results were scored and statistically coded.

2.4. Data Analysis

The data were analyzed with SPSS 20, followed by correlation and stepwise regression analyses.

3. RESULTS

3.1. Score Distribution of Children's writing to Dictation and Cognitive Variables

Test results are shown in Table 2. The raw scores for writing to dictation were converted into standard scores on a 100-point scale. The average scores for spelling, spacing, and punctuation were all higher and the standard deviations significantly smaller in the regular than the impromptu dictation tests. In both tests, first-grade students demonstrated a higher level of spelling compared with spacing or punctuation when writing sentences: a large variance was observed between students for spacing and punctuation, with scores ranged from 0 to 100.

Table-2. Score distribution by variable.

Variable			M(SD)	Minimum–Maximum
Writing to Dictation	Spelling	Impromptu	69.86(19.62)	1.43–98.75
		Regular	96.81(8.89)	6.95–100
	Spacing	Impromptu	46.68(24.94)	0–94.17
		Regular	94.98(9.82)	0–100
	Punctuation	Impromptu	42.34(26.75)	0–100
		Regular	91.99(10.96)	0–100
Listening Comprehension			7.16(2.57)	0–10
Reading Comprehension			8.86(5.26)	0–22
Morphological Awareness			6.61(4.48)	0–16

Note: N = 194; M, mean; SD, standard deviation.

3.2. Correlations between Dictation (Spelling, Spacing, Punctuation) and Listening and Reading Comprehension, and Morphological Awareness

There was a positive correlation ($r = 0.29\sim 0.53$, $p < 0.001$) between the scores for the impromptu and regular dictation tests, as shown in Table 3. The coefficients appear reasonable, neither high nor low, implying that the scores of the two tests were slightly different.

Table-3. Correlations between impromptu and regular dictation.

Variable		Regular Dictation		
		Spelling	Spacing	Punctuation
Impromptu Dictation	Spelling	0.53***	0.34***	0.32***
	Spacing	0.49***	0.33***	0.33***
	Punctuation	0.47***	0.37***	0.29***

Note: *** $p < 0.001$
N = 194.

As shown in Table 4, there were significant correlations ($p < 0.001$), in descending order, between listening comprehension ($r = 0.29\sim 0.38$), morphological awareness ($r = 0.39\sim 0.53$), reading comprehension ($r = 0.46\sim 0.59$) and the assessment factors for impromptu writing to dictation, suggesting that each cognitive ability has a different degree of relationship with writing to impromptu dictation. Interestingly, students' performance in regular dictation to writing showed comparatively lower correlations with these cognitive abilities, as well as among the three assessment factors than in the impromptu test: listening comprehension ($r = 0.19\sim 0.20$), reading comprehension ($r = 0.22\sim 0.27$), and morphological awareness ($r = 0.19\sim 0.22$).

Table-4. Correlations between writing to dictation and listening and reading comprehension, and morphological awareness. (N = 194).

Variable	Impromptu Dictation			Regular Dictation		
	Spelling	Spacing	Punctuation	Spelling	Spacing	Punctuation
Listening Comprehension	0.38***	0.31***	0.29***	0.19**	0.20**	0.20**
Reading Comprehension	0.59***	0.46***	0.47***	0.27***	0.27***	0.22**
Morphological Awareness	0.53***	0.41***	0.39***	0.30***	0.27***	0.19**

Note: ** $p < 0.01$, *** $p < 0.001$
N = 194.

3.3. Effects of Listening Comprehension, Reading Comprehension, and Morphological Awareness on Writing to Dictation

To examine the causal relationships between variables and compare their relative influences, a regression analysis was performed. The variance inflation factors (VIF) value ranged 1.00–1.49 and 1.00–1.38 and the Durbin–

Watson (DW) statistic 1.74–1.96 and 1.65–2.10 for the impromptu and regular dictation tests, respectively, satisfying the basic requirements for regression analysis. Listening and reading comprehension and morphological awareness were used as independent variables in a stepwise method.

Analyzing the spelling, spacing, and punctuation dependent variables of impromptu dictation revealed that reading comprehension explained: 34% of the spelling score, with morphological awareness (7%) and listening comprehension (1%) increasing the explanatory power to a total of 42% of the spelling score; 21% of the spacing score, with morphological awareness (4%) increasing the explanatory power to 25%; and 22% of the punctuation score, with morphological awareness increasing the explanatory power to 25% once more.

Table 5 presents how reading and listening comprehension and morphological awareness all affected students' spelling performance, while only reading comprehension and morphological awareness influenced their use of spacing and punctuation in the impromptu dictation test. Thus, the regression analysis is consistent with the correlation analysis, in that that reading comprehension is the most significant variable in explaining students' performance in impromptu writing to dictation. Moreover, despite dictation being a listening–writing task, morphological awareness was more influential than listening comprehension on students' abilities in impromptu writing to dictation.

Table-5. Effects of listening and reading comprehension and morphological awareness on impromptu dictation.

Dependent Variables		Independent Variables	Unstandardized Coefficients		β	t	R^2	ΔR^2	F
			B	SE					
Impromptu Dictation	Spelling	(Constant)	41.92	3.29			0.42		
		Reading Comprehension	1.45	0.25	0.39	5.77***		0.34	100.39***
		Morphological Awareness	1.23	0.29	0.28	4.30***		0.07	66.41***
		Listening Comprehension	0.97	0.46	0.13	2.09***		0.01	46.52***
	Spacing	(Constant)	24.03	3.25			0.25		
		Reading Comprehension	1.58	0.35	0.33	4.51***		0.21	50.27***
		Morphological Awareness	1.31	0.41	0.24	3.20**		0.04	31.47***
	Punctuation	(Constant)	18.14	3.49			0.25		
		Reading Comprehension	1.86	0.38	0.37	4.95***		0.22	53.63***
		Morphological Awareness	1.17	0.44	0.20	2.67**		0.03	31.23***

Note: ** $p < 0.01$, *** $p < 0.001$

N = 194; Spelling VIF = 1.00–1.49, DW = 1.74; Spacing VIF = 1.00–1.38, DW = 1.89; Punctuation VIF = 1.00–1.38, DW = 1.96.

In contrast, the final explanatory power of the three dependent variables was much smaller and the relative influence of the three independent variables was different in the regular dictation test: morphological awareness and reading comprehension together explained 11% (9% and 2%) and 10% (7% and 3%) of students' spelling and spacing scores, respectively; while reading comprehension alone explained 5% of their punctuation scores. Thus, Table 6 clearly shows that, unlike impromptu writing to dictation, spelling is virtually unaffected by listening comprehension in regular dictation to writing. In addition, morphological awareness was more influential than reading comprehension on spelling and use of spacing, but disappeared, leaving reading comprehension the only influence on the use of punctuation.

4. DISCUSSION AND CONCLUSION

This study was conducted to investigate the effects of first graders' listening and reading comprehension and morphological awareness on their writing to dictation by focusing on the differences in performance between regular and impromptu dictation tests. The findings are discussed in this section.

First, correct spelling, spacing, and punctuation in writing to dictation were found to be strongly correlated with students' cognitive abilities in listening and reading comprehension and morphological awareness, which is consistent with an earlier study showing that the same three abilities were related to elementary schoolchildren's performance in spelling and composition (Kim, 2013). The varying levels of correlation for spelling, spacing, and punctuation in the impromptu dictation test, though, suggest that the cognitive skills were required to a different extent to learn each of these elements, which was further explained by regression analysis.

Table-6. Effects of listening and reading comprehension and morphological awareness on regular dictation.

Dependent Variables		Independent Variables	Unstandardized Coefficients		β	t	R^2	ΔR^2	F
			B	SE					
Regular Dictation	Spelling	(Constant)	91.62	1.27			0.11		
		Morphological Awareness	0.42	0.16	0.21	2.66**		0.09	18.52***
		Reading Comprehension	0.27	0.14	0.16	1.98*		0.02	11.36***
	Spacing	(Constant)	89.20	1.41			0.10		
		Morphological Awareness	0.39	0.18	0.18	2.21*		0.07	15.08***
		Reading Comprehension	0.33	0.15	0.18	2.16*		0.03	10.03***
	Punctuation	(Constant)	87.89	1.51			0.05		
		Reading Comprehension	0.46	0.15	0.22	3.15**		0.05	9.93**

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

N = 194; Spelling VIF = 1.00–1.38, DW = 2.10; Spacing VIF = 1.00–1.38, DW = 1.92; Punctuation VIF = 1.00–1.38, DW = 1.65.

Meanwhile, repetitive practice for the the regular dictation test resulted in significantly lower correlations with the cognitive abilities. Practicing writing-to-dictation sentences and memorizing the correct spelling, spacing, and punctuation for those sentences prior to the test explained the extremely high correlations among the three elements. However, the correlation between these elements and performance in writing to dictation was lower than that in the impromptu dictation tests. The moderate correlation between the performance scores of the two tests suggests that good writing skills exhibited in the regular dictation test do not necessarily guarantee that students possess the skills to write to dictation.

Second, it was revealed that while reading and listening comprehension and morphological awareness all influenced spelling, only reading comprehension and morphological awareness influenced spacing and punctuation significantly, which confirms the hypothesis that these cognitive abilities affect children's writing-to-dictation performance. However, these results differ from those of Kim (2013) that discovered no effect of reading comprehension on spelling and composition among Korean elementary schoolchildren. This disparity could be due to either writing to dictation being a special task or different comparative variables being used: children's vocabulary and morphological awareness.

Some scholars have claimed that reading and spelling depend on the same linguistic knowledge (Babayigit & Stainthorp, 2011; Ehri, 2000). While both this study and that of Mommers and Boland (1987) reported elementary school children's reading comprehension affected their spelling skills, the reading tasks in writing-to-dictation tasks measured comprehension rather than decoding ability. Nevertheless, the effect of reading comprehension on spacing and punctuation was also verified. As reading comprehension was shown to be the strongest predictor for students' writing-to-dictation abilities in this study, yet takes a relatively long time to develop fully (Aarnoutse, Van Leeuwe, Voeten, & Oud, 2001), more effort is needed to discover ways in which it can be improved encourage writing at an early stage.

Third, similar to studies of EFL university students (Al-Jarf, 2005; Habibi et al., 2012), this study confirmed that listening comprehension affected writing to dictation among elementary schoolchildren, although it was only significant for spelling. This could be because listening to and understanding a sentence focuses on content rather than structure, where reading comprehension and morphological awareness are related more to the latter (Newman, 2010). Whereas Kim (2013) found the spelling skills of Korean elementary schoolchildren were not influenced by listening comprehension, the writing-to-dictation tests in this study produced contradictory results, since they demand active listening and a high level of concentration (Chung & Jeong, 2010). In fact, various dictation enrichment exercises are known to be effective in learning languages (Abbott & Berninger, 1993; Kiany & Shiramiry, 2002).

Finally, this study demonstrated that children's morphological awareness affected their writing to dictation, since a written language represents morphology (Guimaraes, 2013); therefore, an awareness of morphology may help children explore word composition or maintain its integrity when writing sentences. Kim (2013) revealed that morphological awareness played an important role in writing Hangeul, which is an agglutinative language with complex particles and suffixes, while other studies reported similar results in relation to spelling (Apel et al., 2012; Deacon, Kirby, & Casselman-Bell, 2009; Goodwin & Ahn, 2013; Green et al., 2003; Kim, 2013; Virginia et al., 2010; Walker & Hauerwas, 2006) composition (Kim, 2013; Northey, McCutchen, & Sanders, 2016), and conventional lexical segmentation (Guimaraes, 2013). However, none of these studies included the use of proper spacing and punctuation. Spacing in Hangeul is typically used between words, but due to the many exceptions, it can be

challenging to learn the rules, but this study demonstrated that morphological awareness can improve the use of spacing, as well as punctuation, which was also the case in writing English (Bryant et al., 2000).

Interestingly, a difference was observed between regular and impromptu dictation in this study: listening comprehension showed no significant effect, while the influence of reading comprehension and morphological awareness was weak in the regular writing-to-dictation test. These results reflected students' efforts to practice and memorize the dictation sentences so that they already knew what to write, and accurately, as soon as a sentence was spoken, rather than exhibiting their cognitive abilities. In an earlier study, children with high scores in regular dictation tests belonged to any group, ranging from upper, middle, and even lower distributions in impromptu dictation tests (Choi. et al., 2018), but this study revealed that performance based on memorization does not demonstrate actual writing ability. Habibi et al. (2012) stated that writing to dictation only produces meaningful results when it takes account of the logic behind the listening, semantic, syntactic, and pragmatic properties of language. Therefore, teachers should adopt appropriate, interesting, and meaningful ways in which children can learn to writing, other than repetitive practice and memorization, that exercise their cognitive abilities; writing to dictation as an assessment tool simply exhausts young learners.

In conclusion, reading comprehension and the ability to select the appropriate vocabulary may exert a strong effect on writing to dictation, while knowledge of grammatical morphemes may also influence children's writing skills. On the other hand, although listening comprehension depends on auditory working memory, its influence on writing to dictation is minimal. As a result, children may need certain prewriting skills to perform a writing-to-dictation task: specifically, children will achieve more by improving their understanding through reading and listening (receptive language) and increasing their morphological understanding of word structure.

However, in addition to excluding phonological awareness and memory, which had been the focus of previous studies, this study did not consider children's general intelligence, which could also influence their performance. Therefore, a follow-up study that includes general intelligence as an influential factor would be valuable in expanding current knowledge about the relationship between various cognitive abilities. Finally, as this study specifically examined Hangeul, similar research into other languages in the future may prove useful to understanding how variations in linguistic ability influence writing to dictation.

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REFERENCES

- Aarnoutse, C., Van Leeuwe, J., Voeten, M., & Oud, H. (2001). Development of decoding, reading comprehension, vocabulary and spelling during the elementary school years. *Reading and Writing, 14*(1-2), 61-89.
- Abbott, R. D., & Berninger, V. W. (1993). Structural equation modeling of relationships among developmental skills and writing skills in primary-and intermediate-grade writers. *Journal of Educational Psychology, 85*(3), 478-508. Available at: <https://doi.org/10.1037/0022-0663.85.3.478>.
- Al-Jarf, R. S. (2005). The effects of listening comprehension and decoding skills on spelling achievement of EFL freshman students. *English Language & Literature Teaching, 2*(11), 35-50.
- Alber, S. R., & Walshe, S. E. (2004). When to self-correct spelling words: A systematic replication. *Journal of Behavioral Education, 13*(1), 51-66. Available at: <https://doi.org/10.1023/b:jobe.0000011260.12674.a3>.
- Apel, K. (2014). A comprehensive definition of morphological awareness: Implications for assessment. *Topics in Language Disorders, 34*(3), 197-209. Available at: <https://doi.org/10.1097/tld.0000000000000019>.
- Apel, K., Wilson-Fowler, E. B., Brimo, D., & Perrin, N. A. (2012). Metalinguistic contributions to reading and spelling in second and third grade students. *Reading and Writing, 25*(6), 1283-1305. Available at: <https://doi.org/10.1007/s11145-011-9317-8>.
- Babayiğit, S., & Stainthorp, R. (2010). Component processes of early reading, spelling, and narrative writing skills in Turkish: A longitudinal study. *Reading and Writing, 23*(5), 539-568. Available at: <https://doi.org/10.1007/s11145-009-9173-y>.
- Babayiğit, S., & Stainthorp, R. (2011). Modeling the relationships between cognitive-linguistic skills and literacy skills: New insights from a transparent orthography. *Journal of Educational Psychology, 103*(1), 169-189. Available at: <https://doi.org/10.1037/a0021671>.
- Bae, H. S. (2015). Orthographic, morphological, and syntactic development of school age children depending on sentence completion writing. *Korean Journal of Linguistics, 40*(3), 403-421.

- Ball, E. W., & Blachman, B. A. (1991). Does phoneme awareness training in kindergarten make a difference in early word recognition and developmental spelling? *Reading Research Quarterly*, 26(1), 49-66. Available at: <https://doi.org/10.1598/rrq.26.1.3>.
- Berninger, V. W. (2000). Development of language by hand and its connections with language by ear, mouth, and eye. *Topics in Language Disorders*, 20(4), 65-84.
- Berninger, V. W., Abbott, R. D., Swanson, H. L., Lovitt, D., Trivedi, P., Lin, S. J. C., & Amtmann, D. (2010). Relationship of word-and sentence-level working memory to reading and writing in second, fourth, and sixth grade. *Language, Speech, and Hearing Services in Schools*, 41(2), 179-193. Available at: [https://doi.org/10.1044/0161-1461\(2009/08-0002](https://doi.org/10.1044/0161-1461(2009/08-0002).
- Bourassa, D. C., & Treiman, R. (2008). Morphological constancy in spelling: A comparison of children with dyslexia and typically developing children. *Dyslexia*, 14(3), 155-169. Available at: <https://doi.org/10.1002/dys.368>.
- Bryant, P., Nunes, T., & Bindman, M. (2000). The relations between children's linguistic awareness and spelling: The case of the apostrophe. *Reading and Writing*, 12(3), 253-276.
- Caravolas, M., Hulme, C., & Snowling, M. J. (2001). The foundations of spelling ability: Evidence from a 3-year longitudinal study. *Journal of Memory and Language*, 45(4), 751-774. Available at: <https://doi.org/10.1006/jmla.2000.2785>.
- Carlisle, J. F. (1995). Morphological awareness and early reading achievement. . *Morphological Aspects of Language Processing*, 189-209.
- Chastain, K. (1988). *Developing second language skills: Theory and practice* (3rd ed.). San Diego, CA: Harcourt Brace Jovanovich.
- Cho, M. S. (2003). A study on the teaching methodology of the dictation. *Korean Language Education*, 13, 117-148.
- Choi, N. Y., Jun, E. O., & Song, J. M. (2018). Predictability of mother's academic expectation stress and guidance for writing. *The Korean Journal of Human Development*, 25(2), 223-247.
- Choi, Y. J., Kim, Y. T., Yun, H. R., & Sung, J. E. (2011). Spelling ability of the final consonants in children with reading disabilities. *Communication Sciences & Disorders*, 16(2), 154-170.
- Chun, G. L., Im, S. G., & Kim, J. B. (2001). *Elementary Korean language education*. Seoul: Kyoyookbook.
- Chung, H. I., & Jeong, D. B. (2010). The effects of dictation activities on English listening and writing achievement among primary school students. *The Journal of Modern British & American Language & Literature*, 28(1), 287-317.
- Das, J. (2001). *Reading difficulties & dyslexia*. New Jersey: Deal, Sarka Educational Resources.
- Deacon, S. H., Kirby, J. R., & Casselman-Bell, M. (2009). How robust is the contribution of morphological awareness to general spelling outcomes? *Reading Psychology*, 30(4), 301-318. Available at: <https://doi.org/10.1080/02702710802412057>.
- Ehri, L. C. (2000). Learning to read and learning to spell: Two sides of a coin. *Topics in Language Disorders*, 20(3), 19-36.
- Goodwin, A. P., & Ahn, S. (2013). A meta-analysis of morphological interventions in English: Effects on literacy outcomes for school-age children. *Scientific Studies of Reading*, 17(4), 257-285.
- Green, L., McCutchen, D., Schwiebert, C., Quinlan, T., Eva-Wood, A., & Juelis, J. (2003). Morphological development in children's writing. *Journal of Educational Psychology*, 95(4), 752-761.
- Guimaraes, S. R. K. (2013). The role of morphosyntactic awareness in conventional lexical segmentation. *Paidéia (Ribeirão Preto)*, 23(55), 225-233. Available at: <https://doi.org/10.1590/1982-43272355201310>.
- Habibi, P., Nemati, A., & Habibi, S. (2012). The role of listening comprehension in dictation. *Indian Journal of Science and Technology*, 5(8), 3208-3210.
- Kiany, G. R., & Shiramiry, E. (2002). The effect of frequent dictation on the listening comprehension ability of elementary EFL learners. *TESL Canada Journal*, 20(1), 57-63.
- Kim, A. H. (2009). Spelling skills of elementary students in Korea: Focusing on spelling accuracy and error patterns. *The Journal of Elementary Education*, 22(4), 85-113.
- Kim, A. H. (2013). A preliminary study on predictors for elementary students' writing. *Communication Sciences & Disorders*, 18(1), 66-75.
- Kim, D. I. (2000). *Basic academic skills assessment: BASA (Reading)*. Seoul: Hakjisa.

- Kim, M. S. (2003). *Relation between reading fluency and writing fluency for the students in primary grades*. Unpublished Master's Thesis Seoul National University, Seoul, Korea.
- Kwon, H. W., Kim, G. S., & Byun, C. S. (2010). Effect of phonemic awareness training on the dictation and writing fluency of academic underachievers in the elementary school. *The Journal of Special Education: Theory and Practice*, 11(1), 337-358.
- Lee, S. M., Park, S. K., & Kim, J. H. (2017). A study on the methods to improve hangul literacy of primary school entrants. *The Journal of Curriculum and Evaluation*, 20(3), 1-24.
- Lee, Y. K., Heo, H. S., & Jang, S. M. (2015). *Language scale for school-aged children*. LSSC. Seoul: Hakjisa.
- Lerner, J. W. (2000). *Learning disabilities: Theories, diagnosis, and teaching strategies* (8th ed.). Boston: Houghton Mifflin.
- Masterson, J. J., & Crede, L. A. (1999). Learning to spell: Implications for assessment and intervention. *Language, Speech, and Hearing Services in Schools*, 30(3), 243-254. Available at: <https://doi.org/10.1044/0161-1461.3003.243>.
- McCutchen, D., Green, L., & Abbott, R. D. (2008). Children's morphological knowledge: Links to literacy. *Reading Psychology*, 29(4), 289-314. Available at: <https://doi.org/10.1080/02702710801982050>.
- Mommers, M. J. C., & Boland, T. (1987). *The development of decoding skills, reading comprehension and spelling skills in Dutch primary schools: A longitudinal investigation*. Paper presented at the Paper presented at the Annual Meeting of American Education Research Association, Washington, DC.
- Newman, D. (2010). Reading comprehension and sentence: Sentence awareness exercises for school-age student. David Newmonic Language Resources 2010-2012. Retrieved from: <http://www.speechlanguage-resources.com/support-files/inferenceactivitiesesebooksupplement.pdf>
- Nies, K. A., & Belfiore, P. J. (2006). Enhancing spelling performance in students with learning disabilities. *Journal of Behavioral Education*, 15(3), 163-170. Available at: <https://doi.org/10.1007/s10864-006-9017-7>.
- Nikolopoulos, D., Goulandris, N., Hulme, C., & Snowling, M. J. (2006). The cognitive bases of learning to read and spell in Greek: Evidence from a longitudinal study. *Journal of Experimental Child Psychology*, 94(1), 1-17. Available at: <https://doi.org/10.1016/j.jecp.2005.11.006>.
- Northey, M., McCutchen, D., & Sanders, E. A. (2016). Contributions of morphological skill to children's essay writing. *Reading and Writing*, 29(1), 47-68. Available at: <https://doi.org/10.1007/s11145-015-9579-7>.
- Rivers, K. O., Lombardino, L. J., & Thompson, C. K. (1996). Effects of phonological decoding training on children's word recognition of CVC, CV, and VC structures. *American Journal of Speech-Language Pathology*, 5(1), 67-78. Available at: <https://doi.org/10.1044/1058-0360.0501.67>.
- Seymour, P. H., Aro, M., Erskine, J. M., & Network, C. w. C. A. A. (2003). Foundation literacy acquisition in European orthographies. *British Journal of psychology*, 94(2), 143-174. Available at: <https://doi.org/10.1348/000712603321661859>.
- Søvik, N., Samuelstuen, M., Svarva, K., & Lie, A. (1996). The relationship between linguistic characteristics and reading/writing performances of Norwegian children. *Reading and Writing*, 8(2), 199-216. Available at: <https://doi.org/10.1007/bf00555370>.
- Straw, S. B., & Schreiner, R. (1982). The effect of sentence manipulation on subsequent measures of reading and listening. *Reading Research Quarterly*, 17(3), 339-352.
- Taylor, I., & Taylor, M. (1995). *Writing and literacy in Chinese, Korean, and Japanese*. Amsterdam: Benjamins.
- Van Hell, J. G., Bosnian, A. M., & Bartelings, M. C. (2003). Visual dictation improves the spelling performance of three groups of Dutch students with spelling disabilities. *Learning Disability Quarterly*, 26(4), 239-255. Available at: <https://doi.org/10.2307/1593637>.
- Virginia, W. B., Abbott, R. D., Nagy, W., & Carlisle, J. (2010). Growth in phonological, orthographic, and morphological awareness in grades 1 to 6. *Journal of Psycholinguistic Research*, 39(2), 141-163. Available at: <https://doi.org/10.1007/s10936-009-9130-6>.

- Walker, J., & Hauerwas, L. B. (2006). Development of phonological, morphological, and orthographic knowledge in young spellers: The case of inflected verbs. *Reading and Writing, 19*(8), 819-843. Available at: <https://doi.org/10.1007/s11145-006-9006-1>.
- Wimmer, H., Mayringer, H., & Landerl, K. (2000). The double-deficit hypothesis and difficulties in learning to read a regular orthography. *Journal of Educational Psychology, 92*(4), 668-680. Available at: <https://doi.org/10.1037/0022-0663.92.4.668>.
- Yerdon, C. J. (1994). The Relationship of developmental spelling scores and reading ability: Can one be used to improve the other? *Reports-Research/Technical, 143*, 1-16.

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