

Word Recognition, Phonological Awareness and RAN Ability of the Korean Second-graders

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ABSTRACT

This study investigated the reading ability of Korean second-graders and the relationship between reading and phonological awareness and RAN (Rapid Automatized Naming) ability. A language-based reading assessment battery was used. Children at the end of the Korean second-grade were still at the developmental stage of decoding skill and seemed to be at Chall's stage 1. Findings indicated significant correlations between reading ability and phonological awareness and between reading ability and RAN ability. Therefore, the importance of phonological processing could be extended to syllable-based alphabetic languages.

Keywords: Reading Ability, Word Recognition, Phonological Awareness, RAN (Rapid Automatized Naming)

1. Introduction

Upon entering school, reading is the target of learning and is also used as a tool of learning. So if children at risk of having reading disability are not identified and their problems are not intervened as early as possible, they may have further difficulty in reading and learning (Catts & Kamhi, 1989; Catts, 1991). Numerous studies on alphabetic languages have examined and confirmed the relationship between reading ability and phonological awareness and/or RAN (Rapid Automatized Naming) ability. However the relationship between reading ability and phonological awareness and RAN ability has not been confirmed in the Korean language which has a syllable-oriented reading and writing system. In English studies on reading development, many researchers have examined second graders. Second graders become skillful and automatic at their decoding ability; it makes them read more fluently and pay more attention to the meaning of what is read. In this study, we examined at what stage Korean second graders are. More specifically, the relationship between reading ability and reading related abilities such as phonological

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awareness and RAN was examined. To find validity of measurement, we compared a comprehensive language based reading assessment with two standardized reading assessments.

The following are the specific research questions:

- (1) Are the Korean second-graders in the alphabetic stage?
- (2) Is there a significant correlation between reading ability and phonological awareness among the Korean second graders?
- (3) Is there a significant correlation between reading ability and RAN ability among the Korean second graders?
- (4) Are there any significant correlations between the comprehensive language-based reading assessment results and the two standardized reading assessment results?

2. Method

The children who participated in this study were 312 children living in Chuncheon at the end of the second grade who went through a normal development without any hearing, emotional, physical or neurological problems. As a result, 42 (10 percent from each, top, middle and bottom score) out of the 312 children were finally selected for the experimental test.

For screening, we used reading tasks such as word recognition, nonsense word recognition (word attack), and text comprehension. Following screening, the comprehensive language based reading assessment was performed for each student: fluency related tasks such as passage reading and function/content word reading, phonological awareness tasks, RAN of numbers and syllables (including letters) as well as word decoding skills and text comprehension ability appropriate for second-graders. We also included language tests tapping syntaco-semantic abilities, and two standardized Korean reading assessment tools (BASA and KEDI-Individual Basic Learning Skill Test).

SPSS version 11.0 was used for statistical analysis. For reading ability, to compare word recognition with nonsense word recognition and grapheme-phoneme correspondent word reading with grapheme-phoneme non-correspondent words, a paired samples t-test was used. Pearson product r was used to find a correlation between reading ability and phonological awareness and RAN. Pearson product r was also used to find a correlation between the comprehensive language-based reading assessment results and the two standardized reading assessment results.

3. Results and Discussion

The results and discussion are as follows.

First, children at the end of the Korean second-grade were still at the developmental stage of decoding skill, as illustrated by the fact that there were statistically significant differences between word recognition and nonsense word recognition ($t = 6.77, p = .001$) and between grapheme-phoneme correspondent word reading and grapheme-phoneme non-correspondent words ($t = 11.78, p = .001$). Based upon these results, Korean second graders seemed to be in Chall's stage 1. They were increasing reading fluency, but used excessive alphabetic strategies for nonsense word or grapheme-phoneme non-correspondent words. Thus, both English and Korean reading development seems to go through a similar developmental pattern.

Table 1. *t*-test results between word recognition and nonsense word recognition for second-graders

	word recognition (n=312)	nonsense word recognition (n=312)	<i>t</i>	<i>p</i>
Mean correct %	87.23 %	77.94 %		
SD	7.33	10.39	6.77	.000
Range	25-100 %	18-98 %		

Table 2. *t*-test results between grapheme-phoneme correspondent word reading and grapheme-phoneme non-correspondent words for second-graders

	grapheme-phoneme correspondent (n=312)	grapheme-phoneme non-correspondent (n=312)	<i>t</i>	<i>p</i>
Mean correct %	94.90 %	65.11 %	11.78	.000
SD	7.04	14.01		
Range	34-100 %	3-94 %		

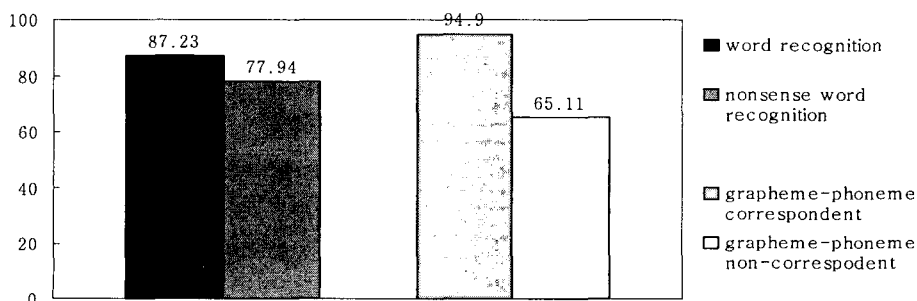


Figure 1. Decoding ability of Korean second-graders

Second, phonological awareness showed a statistically significant correlation with reading ability in Korean ($r = .764, p < .01$). Even though the Korean second graders found the phonological awareness tasks to be difficult, the phonological awareness ability correlated with reading ability. This result supports previous studies which emphasized phonological awareness as one of the most important factors in reading (Catts, 1999; Song, 2002; Swank & Catts, 1994; Torgesen, Wagner & Rashotte, 1994; Wagner & Torgesen, 1987; Yoon, 2003). Phonological awareness seems to be the most powerful variable predicting reading ability for Korean language as well.

Table 3. Correlation between phonological awareness and reading ability of the Korean second-graders

	composite score for reading ability	word recognition	nonsense word recognition	reading comprehension	reading fluency
phonological awareness	.764**	.686**	.725**	.662**	-.515**

*** $p < .001$, ** $p < .01$, * $p < .05$

Third, RAN correlated with reading ability in Korean as presented to the subjects with numbers ($r = -.661, p < .01$) and syllables including letters ($r = -.681, p < .01$). RAN turned out to be a variable that can be correlated with reading ability. Many previous studies proposed a correlation between RAN and reading ability (Denckla & Rudel, 1974, 1976; Wolf, 1986; Wolf & Bower, 2000); However there were contrastive studies which didn't confirm the relationship between RAN and reading ability. The Korean studies on RAN also supported or disproved the relationship between RAN and reading. Some supported the relationship between RAN and reading ability for 5 and 6 year old kindergarteners and for first-graders (Lee, 2002; Song, 2002). For second-graders the relationship between RAN and reading ability was disproved (Yoon, 2003). This study proved the relationship between RAN and reading ability was confirmed for second-graders. Unlike Yoon's study, the subjects were recruited in Chuncheon for this investigation. Since we used the same assessment battery as in Yoon's study, there might be the least possibility for task related differences. Regional consideration is needed for further Korean reading research.

Table 4. Correlation between RAN and reading ability of the Korean second-graders

	composite score for reading ability	word recognition	nonsense word recognition	reading comprehension	reading fluency
RAN of numbers	-.661**	-.657**	-.707**	-.585**	-.645**
RAN of syllables	-.671**	-.796**	-.796**	-.548**	-.878**

*** $p < .001$, ** $p < .01$, * $p < .05$

Fourth, there were significant correlations between the comprehensive language-based reading assessment results and the two standardized reading assessment results. This research utilized a nonstandardized language-based reading assessment tool used in the field of speech-language pathology till the present to evaluate reading skills. Because standardized reading assessment is based on word recognition and sentence comprehension, comprehensive language-based reading assessment materials are essential, as Goldworthy (2003) states. To find validity of measurement, we examined the relationship between our assessment tool and a standardized reading assessment. Table 5 shows the correlation between our assessment results and the two standardized assessment results.

Table 5. Correlation between the comprehensive language based reading assessment results and the two standardized reading assessment results

	composite source	word recognition	nonsense word recognition	reading compre- hension	reading fluency	function word reading fluency	content word reading fluency	PA	RAN
BASA 1	.782**	.715**	.755**	.733**	-.705**	-.689**	-.595**	.692**	-.832**
BASA 2	.584**	.480**	.512**	.611**	-.463**	-.440**	-.364*	.522**	-.464**
KEDI 1	.819**	.792**	.795**	.743**	-.671**	-.631**	-.551**	.640**	-.787**
KEDI 2	.732**	.719**	.730**	.656**	-.587**	-.463**	-.408**	-.633**	-.495**

*** $p < .001$, ** $p < .01$, * $p < .05$

In conclusion, the present study suggests that Korean second graders are still developing at the decoding stage and supports the importance of phonological awareness and RAN ability in reading for syllable-based alphabetic languages like Korean language.

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received: January 15, 2005

accepted: February 30, 2005

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<appendix>

some examples of experimental sentences

yEQaga madaQesE zAmiiDge noraDSEyo.

영아가 마당에서 재미있게 놀았어요

nuga madaQesE zAmiiDge noraDSEyo? (누가)

yEQaga EdisE zAmiiDge noraDSEyo? (어디서)

yEQaga madaQesE ETEDke noraDSEyo? (어떻게)

yEQaga madaQesE zAmiiDge gogyEQhADSEyo? (구경했어요?)

ENniga doQsAQege gugErIR garIcyEyo.

언니가 동생에게 국어를 가르쳐요

nuga doQsAQege gugErIR garIcyEyo? (누가)

ENniga nuguage gugErIR garIcyEyo? (누구에게)

ENniga doQsAQege muEsIR garIcyEyo? (무엇을)

ENniga doQsAQege gugErIR mufEbayo? (물어봐요?)

yEQhinIN borasAG baNbazirIR zoahAyo.

영희는 보라색 반바지를 좋아해요

nuga borasAG baNbazirIR zoahAyo? (누가)

yEQhinIN musINsAG baNbazirIR zoahAyo? (무슨색)

yEQhinIN borasAG musIN oDsIR(muER) zoahAyo? (무얼)

yEQhinIN borasAG baNbazirIR sirEhAyo? (싫어해요?)