

An Investigation of Narration Rates for the Reading While Listening Strategy

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Abstract: This study investigated the effects of Reading While Listening narration rates on elementary students' comprehension. Slow, normal and sentence interval narration rates were used. Results showed higher comprehension scores with the slow narration rate for students with low reading levels, and normal rate for high and medium level readers

Reading while listening (RWL) is an instructional strategy in which children associate unfamiliar printed words with their corresponding spoken words (Bergman, 1999). In the RWL strategy, a more capable reader orally reads a text while the child follows along reading silently. From a Vygotskian perspective, children need an adult or someone more knowledgeable who plans and guides their literacy learning by adjusting the amount and type of mediational support provided (Dixon-Krauss, 1996). The mediational support used in the RWL strategy includes a model of fluent adult reading combined with a narration rate appropriate for the developing young reader. The study reported here examined how adjusting the narration rate used in the RWL strategy affects children's text comprehension.

Literature Review

Reading while simultaneously listening to text has been a common practice for over 25 years, and a few studies indicated that reading along with audiotapes improves scores on reading achievement tests (Schneeberg, 1977). Van der Leji (1981) noted that the RWL technique supplies children with a model of a reading "end product." From this model, children can derive both phonetic rules (Carbo, 1978) and the correct pronunciation of irregular words (Reitsma, 1988). The model also enables developing readers to shift their attention from the effort of reading individual words to the task of comprehending.

Other investigations focused on problems associated with the narration rate used in the RWL strategy. Some children appeared not to benefit from RWL when the narration rate used is faster than the children's own reading rates. Repeated RWL did not improve fluency or accuracy any more than did repeated silent reading (Rasinski, 1990), and reading aloud and silent reading resulted in better comprehension than RWL (Holmes & Allison, 1985). When children could not follow the narration, they were unable to make the connection between the graphemes they see and the phonemes they hear (McMahon, 1983). In contrast, slowing down the narration too much also resulted in comprehension problems that may be due to the limited capacity of young children's short-term memories (Breznitz & Share, 1992). Bergman (1999) reported that for young children, reading with a narration rate they selected was "easier" and "more fun" than undertaking RWL with a fixed rate. In summary, the question of how to appropriately adjust the narration rate for developing readers with various reading abilities remains uncertain.

Research Hypotheses

The following two research hypotheses were examined in this study to address the question of appropriate RWL narration rate adjustments: (a) there is a difference on developing readers' RWL comprehension scores based on narration rates used, and (b) there is a difference in RWL comprehension scores for readers with various levels of reading abilities.

Method

Subjects

Twenty-five Korean-American students were randomly selected from the first to fifth grade students in a Korean school in South Florida. Five of the selected children were not included in this study: three were too restless to finish the task and two children were eliminated due to experimental error. The final sample included twenty children, eleven boys and nine girls, who successfully finished all of the treatment.

Instruments

The following tools were developed for testing children's reading comprehension levels and RWL comprehension.

Reading Comprehension Level Test. A Reading Comprehension Level Test, *It's Fun to Learn Korean* (SSKS, 1991), was used to classify children into three reading comprehension achievement levels. The test consisted of 4 passages, sequenced by difficulty, with 10 accompanying comprehension questions, for a total score of 40. Subjects with scores of 1 to 20 were assigned to low, 21-30 to medium, and 31-40 to high reading comprehension levels.

RWL Passage Test. Six RWL story passages with accompanying comprehension questions were used to measure students' RWL comprehension. The six story passages of approximately 250 words in length were audiotaped. Two story passages were taped at each of the three narration rates: slow rate (65 words per minute), normal rate (80 wpm), and interval rate (80 wpm with five-second interval between sentences). For each passage, ten multiple-choice items were developed to include literal, critical and implied comprehension questions.

Design and Procedures

The experimental design used in this study was a one between-one within group design with the RWL narration rate integrated into the design. Students at each reading comprehension level (low, medium, high) were randomly assigned to story 1 or story 2 for the slow, story 3 or story 4 for the interval, and story 5 or story 6 for the normal narration rates, resulting in three RWL Passage Test scores per subject.

The study was conducted for a period of four weeks in the fall. All tests and treatment were administered to students individually in two sessions conducted by their classroom teachers. In the first session, the Reading Comprehension Level Test was administered with students receiving no feedback about their reading speed or accuracy of responses. Then in the second session, each student completed one RWL Passage Test at the slow, one at the normal, and one at the interval narration rate.

Results

A one between-one within group ANOVA was conducted to evaluate the effect of narration rates on RWL comprehension for students with high, medium and low reading levels. Because the narration rates of the stories can change the dependent variable, RWL comprehension scores, the story narration rate was integrated into the experimental design and then the effects of the

different stories on the dependent variable were removed. The between group factors were narration rates with three levels (slow, normal, and interval) and within group factors were reading comprehension levels (low, medium, and high). The RWL mean scores were reported in Table 1. The dependent variable RWL comprehension mean scores ranged from 2.75 to 8.50.

Table 1. Means and Standard Deviation for Listening Comprehension Scores

		Narration Rates						Total	
		Slow		Interval		Normal			
		Story 1	Story 2	Story 3	Story 4	Story 5	Story 6		
Reading Levels	Low	Mean	7.00	6.00	5.33	4.25	3.00	2.75	4.67
		SD	1.00	1.41	2.08	1.96	1.00	.50	1.88
		N	3	4	3	4	3	4	21
	Medium	Mean	6.33	7.00	6.00	5.67	5.33	5.00	5.89
		SD	1.53	1.00	.00	.58	.58	1.00	1.02
		N	3	3	3	3	3	3	18
	High	Mean	8.20	8.50	7.80	8.00	7.40	8.50	7.95
		SD	1.30	.71	1.10	1.41	1.82	.71	1.24
		N	5	2	5	2	5	2	21
	Total	Mean	7.36	6.89	6.64	5.56	5.64	4.78	6.18
		SD	1.43	1.45	1.63	1.74	2.29	2.44	2.00
		N	11	9	11	9	11	9	60

The results of the ANOVA indicated a significant main effect for RWL narration rates, $F(2, 3) = 21.64, p < .05, \eta^2 = .51$ and for reading levels, $F(2, 6) = 52.48, p < .05, \eta^2 = .40$. There was also a significant interaction effect between narration rates and reading levels, $F(4, 6) = 3.08, p < .05, \eta^2 = .70$. Because the interaction between narration rates and reading levels was significant, the differences among RWL narration rates for the three different reading levels were examined separately. To control for type I error across the three simple main effects, $\alpha = 0.017 (0.05/3)$ was set. The results shown in Table 2 indicated differences in RWL narration rate for the low reading level, $F(2, 6) = 9.94, p < .0017$, but there were no significant differences for the middle, $F(2, 6) = 1.48, p = .300$, and for the high reading levels, $F(2, 6) = .39, p = .691$.

Table 2. Simple Main Effect for Narration Rates Within Reading Comprehension Levels

Source	SS	Df	MS	F	p
Rates within Low	45.48	2	22.74	9.94*	.012
Rates within Medium	6.78	2	3.39	1.48	.300
Rates within High	1.80	2	.90	.39	.691
Error	13.72	6	2.29		

Note. * $p < .017$

The Bonferroni method was conducted to evaluate the three pairwise differences among the means for low reading level, with alpha set at .006 (0.017/3) to control for type I error over the three pairwise comparisons. One of these three comparisons was significant: the comparison associated with the slow and normal narration rate. The slow speed narration rate ($M = 6.43$) had significantly higher comprehension scores than the normal rate ($M = 2.86$) for the low reading level. But there were no significant differences between the interval ($M = 4.71$) and the normal ($M = 2.86$) and between the slow and interval for the low reading level. Students at the low reading level scored higher with the slow RWL rate than they did with the normal or interval rates.

Because the interaction between RWL narration rates and reading levels was significant, the simple main effect of reading levels was examined--that is, the difference among different reading levels within three different narration rates on RWL comprehension. To control for type I error across the three simple main effects $\alpha = 0.017$ (0.05/3) was set. The results shown in Table 3 indicate that differences for the normal narration rate, $F(2,6) = 26.35$, $p < .0017$, but there were no significant differences for the slow, $F(2,6) = 2.50$, $p = .162$, and for the interval, $F(2,6) = 8.74$, $p = .027$.

Table 3. *The Simple Main Effect for Reading Levels Within Narration Rates*

Source	SS	Df	MS	F	P
Read within Slow Rate	7.46	2	3.73	2.50	.162
Read within Interval Rate	26.06	2	13.03	8.74	.027
Read within Normal Rate	78.58	2	39.29	26.35*	.001
Error	8.95	6	1.49		

Note. * $p < .017$

The Bonferroni method was conducted to evaluate the three pairwise differences among the mean for the normal narration rates, with alpha set at 0.006 (0.017/3) to control for type I error over the three pairwise comparisons. All of these three comparisons were significant. The high reading level ($M = 7.71$) had significantly higher RWL comprehension scores than the medium ($M = 5.17$) and low ($M = 2.86$) levels with the normal narration rate, and the medium reading level ($M = 5.17$) had significantly higher RWL comprehension scores than the low reading level ($M = 2.86$).

Conclusions/ Implications

The major findings of this study showed the narration rates and reading ability levels affected children's RWL comprehension abilities. Also, for students with low reading levels, slowing RWL narration rate was more effective in promoting comprehension than a normal narration rate. But medium or high reading level students had the same comprehension regardless of the narration rate used. Similar to previous findings, the results of this study showed that slowing the narration rate can be beneficial to the children's comprehension, and the lower level readers seemed to have profited more from control over the narration rate than did the other readers (Bergman 1999; Carbo, 1988; Reitsma, 1988).

Compared to other narration rates, all three reading level groups had the highest score when they listened to the slow narration rates. The study also showed that there were no significant difference between normal narration rates and interval rates. This finding was consistent with other studies. Bergman (1999) suggested that reading with a narration rate they chose was "easier" for students than undertaking RWL with a fixed rate. McMahon (1983) also reported that the reason some children appear not to benefit from RWL was that the narration rate used was generally significantly faster than the children's own reading rates. Findings from this study indicate that the important factor related to the children's reading comprehension was not the interval between the sentences but the speed of whole stories.

These findings lead to the conclusion that the narration rate used in RWL must be selected to match children's level reading abilities. Further investigation is needed using repeated reading while listening activities with students of varying reading ability levels. In addition, the study's results suggest that the software of talking books or stories should focus on narration rates that are appropriate for the children's levels of reading ability. The software publishers, reading educators, and education policy makers also need to work together in taking on the challenge of exploiting the promise of new technologies for improving children's reading comprehension.

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