

## Reading While Listening: Improving Struggling Adolescent Readers' Comprehension Through the Use of Digital Audio Recordings

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### Abstract

*Although educators have utilized a host of strategies aimed at improving comprehension at all grade levels, reading while listening (RWL) has not received much attention recently. Based on the premise that reading comprehension is related to inner speech, investigators sought to compare the effects of RWL versus silent reading on the comprehension performance of students enrolled in a 10<sup>th</sup> grade high school English course. Students read portions of a novel alternating between reading while listening and reading silently, taking assessments following the culmination of each instructional modality. Results indicated that RWL not only produced a statistically significant reading improvement over silent reading in the comprehension performance of the entire sample, but also an even greater improvement in the comprehension performance of struggling readers, thus providing the foundation for reading professionals to incorporate RWL in their instruction to scaffold students' comprehension abilities.*

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Students are expected to transition from "learning to read" to "reading to learn" (Chall, 1983); they move from learning how to decode written text to extracting information from written text. This transition is generally expected to occur somewhere in the mid to upper elementary school grades (typically between 3<sup>rd</sup> and 5<sup>th</sup> grade) as students are asked to begin reading content-area textbooks in various subjects in addition to the fiction and non-fiction texts they may have already encountered during language arts instruction. Students are then expected to read both content-area textbooks and literary works at an ever-increasing level of independence; the idea being that by the middle school grades, students will read grade-level texts without the need of assistance from the teacher. In addition, it is expected or presumed that students' reading abilities will improve every year to match the increasingly complex reading

requirements of content-area textbooks and literary works.

Unfortunately, this idea of all students reading both content-area textbooks and literary works independently and at grade level has not reached fruition (Cassidy & Ortlieb, 2011). Indeed, the gap in reading ability between students coming from low socioeconomic status (SES) and minority backgrounds and those coming from non-minority and middle to upper SES backgrounds has prompted massive attempts to correct this discrepancy, most notably the No Child Left Behind Act (NCLB) of 2001. Despite over a decade of legislative efforts and curriculum reform, only nominal progress has been made in "closing the gap" in reading ability with fewer than 10% of the states showing any significant narrowing of the gap between low SES/minority students and their non-minority/higher SES peers (National Center for Educational Statistics [NCES], 2009). Indeed, by the time students reach high school age, nearly 70% are still not considered proficient in reading, even though they may have performed well on state-level tests in reading in previous years (NCES, 2009). Moreover, the same data indicate that state level tests are not well aligned with national level tests since large improvements in many state level test scores are not reflected by similar performance gains in national test scores in those states. Evidence that this problem is not corrected at the high school level is demonstrated by data showing that almost 50% of entering college students need to take some form of remedial class (NCES, 2005), and the latest data indicate that in 2009, over 60% of high school seniors scored below the proficient level in reading (NAEP, 2009).

Although educators have been exposed to a variety of strategies aimed at improving comprehension of their students, some methods may have been overlooked. Reading of a text while simultaneously listening to an audio recording of that same text, often referred to as reading while listening (RWL), is one such method of scaffolding reading instruction that has been used in various environments and has demonstrated some success for struggling readers.

## **Theoretical Framework**

The theoretical basis for examining RWL as a method of scaffolding reading achievement dates back to Huey (1968) who posited that reading comprehension was related to "inner speech." In addition, it has long been theorized that listening comprehension and reading comprehension share a conceptual framework or set of processes (Berger & Perfetti, 1977; Fries, 1963; Gibson & Levin, 1975; Goldman, 1976; Goodman, 1966; Kintsch & Kozminsky, 1977; Sticht, Beck, Hauke, Kleiman, & James, 1974; Thorndike, 1973). Theoretical bases such as these have led researchers to investigate the effects of RWL on various elements of reading achievement.

Studies report positive effects of RWL on reading achievement in several areas of reading such as decoding, fluency, and comprehension (Carbo, 1981; Chomsky, 1976; Durkin, 1989; Edwards, 1970; Reitsma, 1988; Schneeburg, 1977; Shany & Biemiller, 1995). Of importance to this particular study are results showing effects on comprehension, particularly for less proficient readers in the primary grades (Edwards, 1970; Schneeburg, 1977; Shany &

Biemiller, 1995). Older students may also benefit from instruction in some of the same skills that are correlated with reading achievement in younger students. Although differences exist between readers of various ages, educators should not ignore opportunities to develop skills for adolescent reading success. For example, a recent study of participants in an adult basic education class found that RWL had a positive effect on fluency improvement (Winn, Skinner, Oliver, Hale, & Ziegler, 2006), which has been shown to highly correlate with reading achievement in younger students.

Investigators of this study sought to determine whether RWL could be utilized to scaffold adolescent reading comprehension. The purposes of the study were to examine: 1) the effects of RWL on comprehension as compared to silent reading, 2) specific effects on subgroups of students within the sample (i.e., more proficient vs. less proficient readers), and 3) student perceptions of RWL compared to silent reading.

## Methods

### Participants

Adolescent students at a public high school in South Texas who were enrolled in two sections of a standard sophomore (10<sup>th</sup> Grade) English course participated in this study. Each section of the course contained 24 students and the same instructor taught both sections of the class. The participants' reading ability varied widely from those who read significantly below grade level to those who read at the college level. Reading ability was evenly distributed across both sections of the class, as a comparison of the two classes' mean reading scores on the state-wide reading test yielded no statistically significant difference in mean reading performance. Testing occurred towards the end of the year (May), and many activities were taking place in the school at this time. For this reason, not all students were present for the entire three days of testing. However, if a student was present for at least a full class period, his or her data was included in the analysis.

### Materials

The materials used in the study consisted of copies of the book *The Old Man and the Sea* (Hemingway, 1952), a professional audio recording of that book read aloud by Charlton Heston, and comprehension questions created by a team of university researchers. This book was selected based on the following criteria: 1) the reading level was accessible to the students; 2) the audio recording was of high quality; and 3) the students were familiar with the context for the story based on its setting (a coastal community) and the cultural heritage of the main characters (Hispanic). The comprehension instrument consisted of six question sets, one for each section of

the book used in this study. Each of these sections was approximately 17-19 pages in length, which corresponded to approximately 20 minutes of time on the audio recording per section. The number of questions varied from six to eight, depending on the density of the section in the novel. Though most questions were related to recall (explicit), inferential questions were also included to provide a holistic portrayal of students' comprehension abilities. A survey was also issued to elicit participatory adolescent students' perceptions of RWL and the use of audio recordings for reading.

## **Procedures**

Data were collected on three occasions. On the first day, students in the morning section of the sophomore English course read the first section of the book along with the audio recording (RWL). When the first section was completed, students closed their books and answered the subsequent questions. The teacher collected student responses and instructed them to read the second section silently at their own pace and close their books when finished. As each student completed the silent reading, s/he was supplied the comprehension questions that accompanied that section of the book.

To control for order and text/question difficulty effects, the afternoon section of the sophomore English course silently read the first section of the book. Just as in the morning class, students signaled their completion of the reading by closing their books, and they were given the questions that accompanied that section of the book. After all students completed the questions accompanying the silent reading, they read the second section of the book along with the audio recording (RWL) and answered its questions.

On the second day of data collection, the same procedures were used except that the order in which the material was read in each of the two classes was switched from that of the previous day: the morning class began reading the third section of the book silently followed by reading the fourth section using RWL; the afternoon class began by using RWL with the third section of the book followed by reading the fourth section silently. On the final day of data collection, the same procedures were used except the order reverted back to that of the first day.

Questions were constructed in a short-answer format. In turn, two instructors were required to read all answers and reach a consensus about what constituted a complete versus partial answer. A full point was given for a complete answer, half of one point was given for a partial answer, and zero points were awarded for incorrect responses or unanswered questions. After scoring the answer sheets, researchers converted the scores to percentages.

## **Results**

### **Comprehension**

To compare the results of silent reading with RWL, a silent reading and RWL score pair

was entered for each instance of a student taking both versions of the test on a given day. A total of 110 ( $N = 110$ ) score pairs were recorded for the three days of testing. Paired sample  $t$ -tests were used to compare reading while listening to silent reading. To determine the effect of RWL on struggling readers' comprehension, the researchers categorized struggling readers as those readers who scored below 50% on the silent reading portion of the measurement instrument, yielding a comparable distribution between the struggling readers ( $n = 53$ ) and proficient readers ( $n = 57$ ). Descriptive statistics of participatory 10<sup>th</sup> graders are summarized in Table 1.

Because three separate  $t$ -tests were used to analyze the data, a Bonferonni correction was applied to the alpha level ( $.05/3 = .017$ ). For the entire sample, there was statistically significant improvement in students' performance using RWL ( $M = 57.3$ ,  $SD = 2.24$ ) over silent reading ( $M = 48.3$ ,  $SD = 2.23$ ,  $t(109) = 3.74$ ,  $p < .001$ ,  $d = .36$ ). Since the average number of percentage points for each question varied between 12.5% and approximately 16%, the mean difference of less than nine percentage points translated to an average of less than one more question correct for the RWL modality in the overall sample.

Table 1

*Results of Total and Subgroups on Passage Comprehension*

Participant	Mean Silent Reading %	SD	Mean RWL %	SD
Total ( $N = 110$ )	48.3%	23.54	57.3%	23.37
Proficient ( $n = 57$ )	67.7	12.77	65.7	21.96
Struggling ( $n = 53$ )	27.5	11.51	48.3	21.60

While the *Proficient* reading group demonstrated no significant difference in reading performance between RWL and silent reading ( $t = -.634$ ,  $p > .017$ ), the *Struggling* reading group's RWL performance ( $M = 48.3$ ,  $SD = 2.97$ ) exceeded silent reading performance ( $M = 27.5$ ,  $SD = 1.58$ ,  $t(52) = 7.206$ ,  $p < .001$ ,  $d = .99$ ) with a large effect. This measure of reading comprehension improvement equated to an average of nearly two more questions correct for the *Struggling* reader group, almost doubling their average comprehension performance.

### Survey

In addition to reading performance data, the researchers gathered data on student perceptions of RWL and the use of audio recordings for reading. The 3-point Likert scale survey created by the researchers asked for responses to four statements related to the recording speed,

RWL’s effect on comprehension, RWL’s effect on reading enjoyment, and attitude towards using RWL in the future (see Table 2). Of those who felt the recording speed was not OK, 13% thought it was too slow, while 5% thought it was too fast. Although the majority of the students did not believe that RWL helped in their comprehension of the passage, nearly half of the students reported that it made the book more enjoyable and an identical percentage indicated their willingness to use audio recordings in the future.

Table 2

*Results of Adolescent Student Perceptions of RWL*

<u>Question</u>	<u>% Agree</u>	<u>% Neutral</u>	<u>% Disagree</u>
The recording speed was OK	82		18
RWL helped my comprehension	26	61	13
RWL made the reading more enjoyable	45	47	8
I would like to use RWL in the future	45	32	23

**Discussion**

This study confirms results of earlier studies, exemplifying that RWL assists less proficient readers at the adolescent/secondary level. It may be helpful, then, to employ RWL as a strategy to scaffold less proficient readers towards comprehension improvement. In addition, the fact that almost half of the survey respondents indicated that RWL made reading more enjoyable also holds promise. Because the greatest aid to reading proficiency is arguably more reading, and because less proficient readers tend to be those who admittedly do not like reading, the fact that RWL increased the enjoyment of reading for many of these students may lead to increased levels of reading and in turn, improved reading ability. Limitations of the study include convenience sampling and a non-standardized measurement instrument. Nonetheless, the researchers believe that the positive results obtained by less proficient readers during the course of this study justify further investigation into the efficacy of RWL for scaffolding reading comprehension in less proficient adolescent/secondary readers. Recommendations for investigating RWL in the adolescent/secondary environment include using a measurement instrument with enhanced psychometric properties, matching comparison groups more closely on the basis of achievement criteria, and designing longitudinal studies to examine the effects of RWL on overall comprehension achievement.

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