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The Effect of Supporting Word Recognition in Early Literacy Instruction on Reading Accuracy and Speed

Banu Aktürkoğlu [1]

Abstract

The aim of this study is to examine the impact of supporting students' word recognition during the early reading and writing instruction process, particularly at the stage of "forming syllables from letters, words from syllables, and sentences from words", on their reading accuracy and reading speed performance. The independent variable in this study is the support provided for word recognition in early reading and writing instruction, while the dependent variables are reading accuracy and reading speed performance. The study was conducted with 13 students in the experimental group and 14 students in the control group, 27 first grade students in total, according to the non-equivalent between groups post-test design of the experimental method. An intervention was implemented in the experimental group based on the following principles: The goal of early literacy instruction should not be just to teach students to decode. Students should be prevented from becoming accustomed to reading letter by letter or syllable by syllable. Word recognition should not be considered separate from the process. Students should be encouraged to search for meaning. Morphological awareness should be supported by providing words with morphological variety. The findings for both hypotheses of the study revealed that supporting word recognition during the early reading and writing instruction process significantly increased both reading accuracy and reading speed performance, with a large effect size. These results are important for improving the quality of the current Early Literacy Phonics Instruction process and serve as a reference for different implementations.

Keywords

Early literacy
First grade students
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Introduction

Reading is more than recognizing the letters that make up a written text, recalling the sounds associated with those letters, and identifying the words they form when combined. It also involves inferring higher-level meanings from texts based on the meanings of words gained through decoding or from the mental lexicon. In other words, the purpose of reading is comprehension. Fluent reading is a key component that affects reading comprehension (Baştuğ & Akyol, 2012; Baştuğ & Keskin, 2012; Uribe-Zarain, 2007). Accurate reading and reading at a sufficient pace, along with prosody, are

[1] Hacettepe University, Faculty of Education, Department of Primary Education, Türkiye, banuakturkoglu@gmail.com

components of fluent reading. (Uribe-Zarain, 2007). Just as it is impossible to understand a text that is read inaccurately, it is also impossible to understand a text that is read too slowly (Baydık, 2006). In the cognitive dimension of reading comprehension, the length of time that the input processed in short-term memory remains is no more than 20 seconds (Senemoğlu, 2018, p. 275). According to Akçin (2019), Brinkerhoff and Keefe also mentioned that an adult's short-term memory can hold seven items (+/- 2) at a time, and that this number decreases as a child's age decreases; while decoding the letters of a new word one by one, the child keeping the individual letters of the word in memory can cause the short-term memory capacity to be overloaded. Therefore, if the text is read slower than it should be, the gap between what was read earlier and what was read later widens, and forgetting becomes a factor. Forgetting makes it difficult to draw a correct meaning by making a connection between the elements of the text. According to Baydık (2006), Ehri and McCormick indicated that the automatic reading of words facilitates fast reading. Miles and Ehri (2019, pp. 63-64, 75) also state that the mind must be free to comprehend what is being read; that this depends on the ability to automatically retrieve words from memory without decoding them by analyzing all letter by letter; and that the visual lexical memory of developing readers improves through repeated exposure to words without ignoring the letter-sound relationship and meaning.

Theorists who explain individuals' reading development in terms of phases of word reading development refer to similar stages, although some are named differently. Ehri (2005, as cited in Miles & Ehri, 2019, p. 70) named these phases as pre-alphabetic, early alphabetic, later alphabetic, and consolidated alphabetic. The consolidated alphabetic period, which begins with an increase in the number of words stored as wholes in memory during the later alphabetic period, is called the orthographic stage by Frith (Baydık, 2006). In the orthographic stage, readers automatically recognize words while reading. However, Rieben (2005) noted that although relevant studies suggest that children move from logographic processing to phonological processing and then to orthographic processing in word recognition, this strictly sequential perspective is being questioned; orthographic processing may begin earlier than expected, and the strategies used in these stages tend to coexist rather than follow one another sequentially. The key question is the dynamics that allow the transition from one stage to another.

Since reading is a fundamental skill used not only in academic life but throughout one's lifetime, the quality of reading ability affects not only an individual’s academic life but also their non-academic life. The foundation for strong reading skills is established during the process of learning to read. Although individuals may have various reading experiences from early childhood (Bjorklund, 2000, pp. 366-367; Davidson, 1996, pp. 79-98; Kargın & Güldenoğlu, 2019, pp. 274-275; McGee & Richgels, 2003, p. 7; Saracho & Spodek, 2002, pp. 171-173; Scarborough, 2001/2018, p. 97; Tracey & Morrow, 2006, pp. 85-86), they generally learn to read through structured instruction during the early literacy, with few exceptions. The approach adopted in early literacy instruction and the method followed based on this approach are crucial in supporting the acquisition of strong reading skills. Weaver (1994, pp. 49-50) notes that in Chall’s 1967 book “Learning to Read: The Great Debate,” reading approaches were divided into two categories: the "code-based approach," which focuses on alphabetic decoding, and the "meaning-based approach," which emphasizes meaningful units rather than the alphabetic principle and letter-sound relationships. Weaver also points out that many teachers understood this distinction simply as a phonics versus sight word approach, and later, this conflict was incorrectly reframed as a choice between phonics and whole language.

In Türkiye, from 1968 to 2005, the "Sentence Analysis" method, an analytical technique, was used for early literacy instruction (Ministry of National Education [MoNE], 1968, p. 114). However, starting from the 2005-2006 academic year, a synthetic method known as the "Phonics-Based Sentence Method" began to be used (MoNE, 2005, p. 253), and in 2017, the method's name was changed to "Phonics-Based Early Reading and Writing Instruction" (MoNE, 2017, p. 12). In Türkiye, there are not enough experimental studies comparing these two methods regarding their effects on reading achievement. The scientific results on which the superiority of one over the other is based are mostly

based on studies conducted in countries where languages such as French and English are used, whose structure, especially in terms of sound-letter correspondence, is different from Turkish, where one sound corresponds to one letter. Lerkkanen (2003) also noted that most reading research has been conducted on English rather than on languages with regular letter-sound correspondence. Moreover, as a reflection of the idea expressed by Flesch in 1955 that children can read every word by teaching the letter-sound relationship, it can be said that the results of many studies conducted abroad basically reveal the contribution of phonemic awareness and letter-sound relationship in learning to read and write, not the superiority of the methods over each other, as stated by Chall (Stahl, 2001/2018, pp. 333-335). According to Stahl (2001/2018, p. 335), the National Reading Panel examined a large number of studies through meta-analysis, investigating the effects of phonics instruction on groups with different characteristics, and no significant differences were found between teaching methods such as synthetic, phonogram-based, and eclectic phonics instruction. As Akıncı, Bektaş, Gülle, Kurt, and Kurt (2016) also mentioned, it cannot be said that the number and results of studies comparing early literacy instruction methods in Türkiye, especially experimentally, are sufficient. Existing studies indicate that while students taught through the Phonics-Based Early Reading and Writing Instruction approach begin independent reading earlier than those using the previous method, they encounter difficulties with reading accuracy, speed, and comprehension (Akman & Aşkın, 2012; Aktürk & Mentiş Taş, 2011; Avcı & Şahin, 2016; Baştuğ & Erkuş, 2016; Beyazıt, 2007; Kadıoğlu Ateş, Ada, & Baysal, 2014; Tok, Tok, & Mazı, 2008; Toker, 2006; Turan & Akpınar, 2008).

The starting point of this research is the question of whether there are features in the process of teaching reading and writing through Phonics-Based Early Reading and Writing Instruction that do not support, or even negatively affect, students' ability to read accurately and fast enough, and if so, what those features might be. The answer to this question was sought in the section of the Turkish Language Teaching Program related to early literacy instruction (MoNE, 2019, pp. 10-14) and in a currently used first-grade early reading and writing textbook. The first stage of the process through Phonics-Based Early Reading and Writing Instruction is "preparation for early literacy". This stage is important in terms of bringing students' cognitive, affective, and psychomotor development areas to a level that supports learning to read and write. The final stage is "independent reading and writing", which is the primary goal of early literacy instruction. It is expected that these two stages are the beginning and end stages of almost every early literacy instruction method. The second stage of the process is "starting and progressing in early literacy". This stage includes the steps of "feeling, recognizing, and distinguishing the sound," "reading and writing the letter," "forming syllables from letters, words from syllables, and sentences from words," and "reading texts." Phonemic awareness is an important factor that influences the learning of reading and writing (Adams, 2001/2018, pp. 66-78; Anthony & Francis, 2005; Kargın & Güldenoğlu, 2019, pp. 280-283; Lerkkanen, 2003; McGee & Richgels, 2003, p. 119; Milledge & Blythe, 2019; Saracho & Spodek, 2002, pp. 173-174; Troia, 2004, pp. 271-280). Distinguishing sounds is one of the tasks of phonological awareness. In this respect, the "feeling, recognizing, and distinguishing the sound" step is crucial for the process of teaching and learning early literacy. There are also studies that show the letter-sound relationship supports this process more than phonemic awareness (Lerkkanen, 2003; McGee & Richgels, 2003, p. 125; Miles & Ehri, 2019, p. 75-76; Rieben, 2005; Stahl, 2001/2018, p. 343; Tortorelli, Bowles, & Skibbe, 2017). In this respect, the "reading and writing the letter" step is also important for the teaching and learning process of early literacy. Reading and writing texts is the step before independent reading and writing, and it is expected to be the step preceding independent reading and writing in every early literacy instruction method.

In the "starting and progressing in early reading and writing" stage, after the "feeling, recognizing, and distinguishing the sound" step, a synthetic method is used. According to the sequence outlined in the curriculum, after teaching the pronunciation and writing of the designated letter, that letter is combined with previously taught letters to form syllables, then words from syllables, and sentences from words. It is observed that the steps of "reading and writing the letter" and "forming syllables from letters, words from syllables, and sentences from words" encompass the characteristics Ehri (2005, as cited in Miles & Ehri, 2019, p. 70) described for the full alphabetic and consolidated

alphabetic (orthographic) phases. Particularly during the "forming syllables from letters, words from syllables, and sentences from words" step, students may tend to focus on seeing and recognizing the letters or syllables as the first language structures, depending on the quality and quantity of classroom activities. This focus on recognizing letters and syllables during reading, and recalling their sounds to combine them, can lead to a neglect of meaning, hinder accurate word reading, and slow down reading speed. Uribe-Zarain (2007) also emphasized that a reader's frequent pauses to decode words would hinder comprehension and make the reading process difficult. According to Tracey and Morrow (2012/2017, p. 105), Gunning noted that during the full alphabetic stage, the effort to process every letter in a word can lead to the habit of letter-by-letter reading, which slows down reading speed. In the section of the Turkish Language Teaching Program (MoNE, 2019, pp. 10-14) concerning early literacy instruction, there is no guidance provided to address the prevention of these negative outcomes. Sağırlı (2019) also found in a study involving 332 classroom teachers that 73.5% of the teachers considered the explanations and examples of practice, particularly regarding the steps of early literacy instruction in the curriculum, to be insufficient. It is thought that this deficiency in the program may lead first-grade teachers to engage in incorrect practices during the early literacy instruction process, such as encouraging activities that foster syllabic reading habits or hanging text boards in the classroom with each syllable of words written in different colors and using similarly written texts in activity sheets, which could reinforce these habits.

Textbooks are among the primary materials used in the implementation of curricula. It is natural for the ambiguities in the curriculum to be reflected in the textbooks. Although these books are evaluated by the relevant committees, the authors of the books often interpret the ambiguities in the curriculum based on their own experiences when preparing the content. It is believed that the content of first-grade early literacy textbooks used in Türkiye since the 2005-2006 academic year may lead students, who are still in the process of learning to read, to focus primarily on recognizing and combining small linguistic units such as letters and syllables. For instance, when reviewing one of the currently used first-grade early literacy textbooks (Civelek, Yılmaz Gündüz, & Karafilik, 2018), the following content features are observed: forming units not found in any Turkish word (p. 69: ul, uk; p. 85: iy, üy; p. 95: lö; p. 105: ıy, ık, ıt; p. 111: ed, üd, ıd; p. 140: eç); introducing all previously taught vowels before and after the new consonant to form syllables simultaneously (p. 63: -em, -im, -om, -me, -ma, -mi, -mo; p. 73: -et, -it, -ta, -to, -at, -ot, -te, ti, -tu; p. 85: -ey, -iy, -uy, -ye, -yi, -yu, -ay, -oy, -üy, -ya, -yo, -yü; p. 99: -er, -ir, -ur, -ör, -ra, -ro, -rü, -ar, -or, -ür, -re, -ri, -ru, -rö; p. 111: -ed, -id, -ud, -öd, -de, -di, -du, -dö, -ad, -od, -üd, -ıd, -da, -do, -dü, -dı); leaving the formed syllables as they are without turning them into words (p. 95: -nö, -tö, -ök, -öm, -yö; p. 99: -ir, -ro, -or, -ür, -re, -ri, -ru, -rö; p. 105: -ıl, -mı, -rı; p. 135: -ız); repeating the syllables without connecting them to words (p. 27: -le; p. 33: -la; p. 43: -ik, -li, -ki; p. 49: -na, -ni; p. 59: -lo, -ko; p. 63: -om, -ma). This approach not only encourage students to focus on combining small linguistic units like letters and syllables but also do not support word recognition. Word recognition should not be delayed until after the early literacy instruction process. According to Baydık (2006), Siegler argues that reading development in the early grades is largely linked to word reading skills, while Ehri and McCormick emphasize that as the number of words children recognize as whole units increases, their reading speed also improves. In the early literacy instruction process, combining syllables to form words and repeating them in word form helps beginning readers to perceive words as complete units. Learning to pronounce the words correctly and understand their meanings also supports beginning readers in using the lexical route of the Dual-Route Cascaded Model, which refers to the automatic recognition of words (Coltheart, Curtis, Atkins, & Haller, 1993). It is thought that a literacy instruction process that supports word recognition will be more practical and easier for beginning readers in Turkish, a language with a "one sound-one letter" feature, compared to languages that lack this feature. Troia (2004, p. 272) also notes that in languages with more regular spelling patterns like Turkish, children learning to read are more likely to correctly and quickly decode written stimuli by easily matching letters to sounds directly, compared to children learning to read in English. In conclusion, it is believed that in the literacy instruction process through Phonics-Based Early Reading and Writing Instruction, keeping students occupied with syllables, after successfully passing the "feeling, recognizing, and distinguishing the sound" and "reading and writing the letter" steps, will hinder their search for meaning, prevent them from reading accurately and quickly enough, and fail to support word recognition for students without learning difficulties.

One of the cognitive language competencies related to learning to read is morphological awareness. Morphological awareness is the ability to recognize and use the components that make up words (Memiş, 2019). Topbaş, Maviş, and Başal (1997) noted that children begin using various morphemes from the early stages of verbal communication. Kuo and Anderson (2006) highlighted that morphological awareness supports word decoding. Zhang, Ke, and Mo (2023) also noted that when letter-sound relationship rules are insufficient for decoding words correctly, larger units like morphemes can enhance decoding fluency. Carlisle (2004, p. 319) indicated that transparent letter-sound relationships facilitate morphological awareness more than opaque relationships. In this regard, Turkish has a structure that facilitates morphological awareness (Karadağ & Kurudayıoğlu, 2010; Memiş, 2019). Onan (2009) also stated that the transparency of Turkish words in terms of root-suffix relationships, along with their agglutinative structure, makes word learning easier. Presenting suffixes in different words during early literacy instruction is thought to trigger students' morphological awareness, which contributes positively to both decoding and word recognition. In the analyzed textbook (Civelek et al., 2018), it was observed that there was no content designed to stimulate morphological awareness, which is essential for learning to read, in the first group of six letters, and it was presented only once in the second group (p. 65). For example, in the first group, after introducing the letter "n," reaching the syllable "-nen," which contains a morphological unit (-n), and using this syllable consecutively in different words like "annen(your mother)" and "ninen(your grandmother)" allows students to realize that the same syllable expresses belonging to the same person in different words. In the third group, after introducing the letter "m," reaching the syllable "-nem," which contains a morphological unit (-m), and using this syllable consecutively in words like "annen(your mother)" and "annem(my mother)" help students understand that different syllables in the same word indicate possession related to different individuals. These types of content offer important and necessary opportunities for facilitating word recognition by reflecting the meaning already present in students' spoken language into written language. In the same textbook, the syllable "-lik" is used in the word "kimlik(identity)" in the third group of letters (p. 63). However, this syllable, a morphological unit, should be used consecutively in words present in students' spoken language, such as "kalemlik(pencil case)" and "ekmeklik(bread bin)" to trigger their awareness. This implies that classroom teachers who adhere strictly to the textbook, without offering supplementary examples of syllables, words, sentences, or texts beyond the textbook, are not fostering morphological awareness either. The belief held by some teachers that they can complete the early literacy instruction process by introducing all twenty-nine letters in just a few months may be a sign of this issue.

Based on these observations, an intervention was developed for the "forming syllables from letters, words from syllables, and sentences from words" stage of the Phonics-Based Early Reading and Writing Instruction, which aligns with the Full Alphabetic and Orthographic Stages. The goal of this intervention is to support beginning readers in developing word recognition skills and to ensure that, by the end of the process, they can read both accurately and fluently. The intervention is based on the following key principles:

- Word recognition should be supported throughout the early literacy instruction process.
- The goal of teaching should not be limited to students merely decoding.
- Students should be prevented from getting used to reading letter by letter or by spelling.
- Students should be encouraged to develop the habit of searching for meaning while reading.
- Morphological awareness should be supported by providing words with morphological diversity.

The purpose of the study is to investigate the effect of the proposed intervention on reading accuracy and reading speed. In line with this goal, the research question and hypotheses are as follows:

Research Question: Does supporting word recognition in early literacy instruction affect the reading accuracy and reading speed of first-grade students?

Hypotheses:

1. Supporting word recognition in early literacy instruction has a positive effect on the reading accuracy of first-grade students.
2. Supporting word recognition in early literacy instruction has a positive effect on the reading speed of first-grade students.

Methodology

The independent variable of this research is the support for word recognition in early literacy instruction; the dependent variables are the success in accurate reading and the success in reading speed. The research was conducted using an experimental method to find out whether the independent variable has an effect on the dependent variables. The assignment of the first-grade primary school students, who constitute the participants of the study, to different classes is determined by the Ministry of National Education through a draw at the beginning of the school year on the e-School, in accordance with the Ministry of National Education's Regulation on Preschool Education and Primary Education Institutions (MoNE, 2014, p. 3). It is not possible for these students to participate in early literacy instruction in experimental and control groups, which are formed by random assignment, outside of the classes determined at the beginning of the school year. Therefore, this study was conducted using a quasi-experimental method (Akbay, 2022, p. 169; Christensen, Johnson, & Turner, 2015, p. 336; Karasar, 2016, p. 134).

The research was conducted according to the non-equivalent between groups posttest-only design of the experimental method (Christensen, et al., 2015, pp. 257, 259-260). Except in rare cases, students learn to read and write in the first grade of primary school. Additionally, it was recognized that administering a test to students who have not yet learned to read and write, in order to assess their accuracy and reading speed, could foster negative attitudes toward learning to read and write, as well as toward school. For these reasons, no pretest was administered to the groups. However, in order to ensure the internal validity of the research, when forming the groups, factors such as the service region and service area grades, as well as the service points of the schools where the groups are located (determined by MoNE based on geographical, social, economic, and transportation characteristics) (MoNE, 2022); the use of the same reading and writing textbooks; and the similarity in the number of students, their age in months, gender, and teachers' seniority were taken into account. The research was conducted with one experimental and one control group. The symbolic representation of the design followed in the research is as follows:

GD1	X	O
GK1		O

Study Group: To determine the accuracy of the research hypotheses, the data were collected from the students of voluntary first-grade teachers in public elementary schools, selected through purposeful and convenient sampling (Christensen et al., 2015, p. 214). In experimental studies in the field of education, finding teachers who are willing to voluntarily implement the experimental procedure as planned is a critical issue, and this can sometimes be challenging. Therefore, working with appropriate teachers who the researcher is familiar with in terms of their qualifications related to the research can facilitate the study.

Although the groups were not perfectly matched, the following measures were taken to ensure the internal validity of the research (Christensen et al., 2015, pp. 190-200): At the beginning of the research, four first grade teachers from different schools who volunteered to implement the experimental procedure were identified to control for possible participant attrition in the experimental and control groups. To avoid the negative impact of possible communication between teachers and students within the same schools on the experiment, four control groups were selected from different schools with similar characteristics to the experimental group schools. The researcher conducted

evaluations with the teachers of the experimental groups, especially at the beginning of the process, to ensure that the experimental procedure was carried out as planned. In the process of early literacy instruction, three of the four teachers in the experimental groups were excluded from the study because they did not or could not fully adhere to the "working principles of forming syllables from letters, words from syllables, and sentences from words" that support the independent variable of word recognition. Therefore, the experimental group was formed from the students of a first-grade teacher who carried out the experimental procedure as planned from beginning to end. Among the four control groups initially identified, the one with socioeconomic characteristics similar to the experimental group was retained as the control group.

To ensure that the students in the groups had similar characteristics, prior to data collection, students who had not attended preschool, who had already learned to read and/or write, or who had been diagnosed with a learning disability were identified by asking the classroom teachers of the experimental and control groups. These students were not included in the study group. The characteristics of the study group are shown in Table 1. As a result, the study group consisted of 27 first grade students, 13 in the experimental group and 14 in the control group.

For the reasons explained above, working with only 27 students, all of whom had attended preschool, had not previously learned to read and/or write, and had not been diagnosed with a learning disability, somewhat limited this research.

The characteristics of the study group are shown in Table 1.

Table 1. Characteristics of the Study Group

Characteristics	Experimental Group	Control Group
Female Student	7	10
Male Student	6	4
Total Students	13	14
Average Age in Months	75,7	76,6
Teacher's Seniority and Gender	20-Female	21-Female
School's Service Region, Area, and Point	1, 1, 10	1, 1, 10

Experimental Procedure: In this research, the teaching of early reading and writing in both the experimental and control groups was conducted using the " Phonics-Based Early Reading and Writing Instruction" adopted for early literacy instruction in the Turkish Language Curriculum (2019, pp. 10-14), following the order of letters provided in the Curriculum (p. 12). According to this order, the first group includes the letters "e, l, a, k, i, n"; the second group "o, m, u, t, ü, y"; the third group "ö, r, ı, d, s, b"; the fourth group "z, ç, g, ş, c, p"; and the fifth and final group "h, v, ğ, f, j."

The experimental procedure of the research, or in other words, the independent variable, is the support for word recognition in early literacy instruction. To support students' word recognition during the "forming syllables from letters, words from syllables, and sentences from words" phase, the following basic principles were first established:

- Word recognition should be supported throughout the early literacy instruction process.
- The goal of teaching should not be limited to students merely decoding.
- Students should be prevented from getting used to reading letter by letter or by spelling.
- Students should be encouraged to develop the habit of searching for meaning while reading.
- Morphological awareness should be supported by providing words with morphological diversity.

Subsequently, in line with these basic principles, the following working principles were established for the "forming syllables from letters, words from syllables, and sentences from words" phase:

1. Syllables such as "-ed, -ad, -id, -od, -ud, -üd, -öd, -ıd, -de, -da, -di, -do, -du, -dü, -dö, and -dı," which are formed by placing all previously introduced vowels before and after a consonant, should not be given consecutively.
2. A syllable should be introduced if it can form a new syllable or word when combined with a unit previously introduced. For example, the syllable "-mo" should only be introduced after the letter "r" is given if it is going to be used in the word "mor," rather than immediately after introducing the letter "m."
3. Reading and writing exercises should be conducted using meaningful units. After the initial pronunciation is demonstrated, repeated reading and writing exercises should not be conducted with isolated syllables that are separate from words.
4. Sentences and texts that consist of words with syllables highlighted in different colors should not be used.
5. Units like "ık, ım, ın, ıt, ıy, ed, ıd," which do not exist in any Turkish word, should not be introduced.
6. Once a syllable is introduced and its pronunciation is demonstrated, it should immediately be combined with previously introduced suitable units to form a word. For example, if the syllable "-lo" is introduced, it should lead to the word "alo."
7. Once a word is introduced and its pronunciation is demonstrated, it should immediately be combined with previously introduced suitable words to form a sentence.
8. Once a sentence is introduced and its pronunciation is demonstrated, it should immediately be combined with previously introduced suitable sentences to form a text.
9. The meaning of each newly introduced word, sentence, and text should be emphasized.
10. A new letter should only be introduced after sufficient words containing it in the students' spoken language have been reached.
11. After a syllable containing a morphological unit is introduced, it should be repeated in different words, and attention should be paid to the meanings of those words.

The necessary permissions for the research were obtained from the Ethics Committee of the Hacettepe University Senate and the Ministry of National Education. A week before the schools opened, the researcher provided detailed information to the teacher of the experimental group regarding the "working principles of forming syllables from letters, words from syllables, and sentences from words" to support word recognition in early literacy instruction. During the early literacy instruction process, the researcher provided the class teacher with new syllables, words, sentences, and texts to be given to the students before each letter group. After each letter group, the researcher evaluated the process with the class teacher and answered the teacher's real-time questions via a mobile app. After the first letter group was completed, the researcher visited the experimental group's classroom to conduct observations related to the application. An observation was also made in the control group's classroom to be used in explaining the findings. Similarly, at the end of the process, samples were taken from the notebooks of students in both groups for analysis.

The teacher of the experimental group determined the pace of introducing new letters according to the speed at which the working principles were applied. In the control group, the pace of introducing new letters was also left to the discretion of the class teacher. In both the experimental and control groups, all letters were introduced by mid-January, and the data from the groups were collected two to three days after the final letter, "j," was introduced.

Measurement Tool: In this research, "accurate reading" refers to the correct pronunciation of all the letters in a word and the word as a whole, while "reading speed" refers to the number of words read correctly in one minute. A measurement tool was used to determine the accuracy of the two hypotheses of the research. The measurement tool is a text read aloud by the students. It is a free reading text titled "Kim Bizi Destekler" (Who Supports Us) from a book that was approved by the Board of Education of the Ministry of National Education as a first-grade Turkish textbook (Değirmenci & Karafilik, 2013, pp. 20-21) and had not been used by the students in the study group. The text was typed on a computer in the ALFABET98 font, which is commonly used by first-grade teachers when preparing activity sheets, in 16-point font, and printed on a sheet of paper about one-third the size of an A4 paper.

The entire text selected as the measurement tool was not used for data collection. Before the data collection began, 10 students who were not part of the study group were asked to read the text aloud to determine how many words they could read in one minute. It was observed that the maximum number of words read in one minute was 32. As a result, it was decided to use the first paragraph of the text, including the title, which consists of 36 words, as the measurement tool. The text contains all letters except for "ö," "c," and "j."

Data Collection Process: The audio recordings of the participants' reading aloud in the experimental and control groups were made during the weeks when they had completed working with all the letters, though not on the same dates. The recordings were made in a room designated by the school administration in the school building where no one else was present except the researcher and the student to be individually recorded. No instructions regarding the accuracy or speed of their reading were given to the students during the reading process.

Data Analysis: The data analysis was conducted based on the individual and oral reading recordings of the participants in the experimental and control groups using the prepared measurement tool. These recordings were listened to by the researcher, and each student was awarded one point for each correctly read word, with an accurate reading score determined out of a total of 36 points. Additionally, the reading speed score was determined by giving one point for each word correctly read within one minute based on the same recordings. Accurate reading was essential for both measures. The criteria for accurate reading included pronouncing all the letters in the word, not adding extra letters, not changing the order of the letters, and reading the word as a whole without breaking it down individual letters or syllables. Words that were initially read incorrectly but were later corrected by the student without any external prompting were considered correct.

To ensure the reliability of the measurement results used to determine accurate reading and reading speed, the researcher conducted two separate evaluations for each student 15 days apart. The recordings were re-listened to until 100% consistency was achieved between the two sets of scores.

Before deciding whether to use parametric or non-parametric analysis methods to determine whether there was a significant difference between the accurate reading and reading speed scores of the experimental and control groups, the data were tested for normal distribution. Since the group size was less than 50, normality was assessed using the Shapiro-Wilk test (Büyüköztürk, 2015, p. 42). The test results are presented in Table 2.

Table 2. Shapiro-Wilk Test Results for the Reading Accuracy and Reading Speed Achievement Scores in the Experimental and Control Groups

Groups		**Shapiro-Wilk**		
		Statistic	**df**	**Sig.**
Reading Accuracy	Experimental	,873	13	,057
	Control	,851	14	,023
Reading Speed	Experimental	,965	13	,831
	Control	,849	14	,022

According to the results of the Shapiro-Wilk test, it was observed that the data for both the Reading Accuracy (p = .057) and Reading Speed (p = .831) scores of the experimental group exhibited a normal distribution (p > .05), whereas the data for both the Reading Accuracy (p = .023) and Reading Speed (p = .022) scores of the control group did not exhibit a normal distribution (p < .05). Therefore, the data were transformed to their squares and re-evaluated using the Shapiro-Wilk test to determine if the datasets would show normality (Akbulut, 2010, p. 46). The test results are presented in Table 3.

Table 3. Shapiro-Wilk Test Results for the Squared Scores of Reading Accuracy and Reading Speed Achievement in the Experimental and Control Groups

Groups		Shapiro-Wilk		
		Statistic	df	Sig.
Reading Accuracy	Experimental	931	13	,353
	Control	,724	14	,001
Reading Speed	Experimental	,915	13	,218
	Control	,673	14	,000

Based on the results of the Shapiro-Wilk test performed on the transformed datasets, it was observed that the data for both the Reading Accuracy (p = .353) and Reading Speed (p = .218) scores in the experimental group exhibited a normal distribution (p > .05). However, the data for both the Reading Accuracy (p = .001) and Reading Speed (p = .000) scores in the control group did not exhibit a normal distribution (p < .05). As a result, it was decided to use the non-parametric Mann-Whitney U Test to determine whether there was a significant difference between the Reading Accuracy and reading speed scores of the experimental and control groups (Büyüköztürk, 2015, pp. 165-168). The effect size was assessed using Cohen's d value and eta-squared value. All analyses except for Cohen's d value were performed using SPSS 22, while Cohen's d value was calculated manually.

Findings

The first hypothesis of this research is: " Supporting word recognition in early literacy instruction has a positive effect on the reading accuracy of first-grade students." To determine the accuracy of this hypothesis, the reading accuracy scores of 13 students in the experimental group and 14 students in the control group were compared using the Mann-Whitney U Test. The test results are presented in Table 4.

Table 4. Mann-Whitney U Test Results for the Reading Accuracy Achievement Scores of the Experimental and Control Groups

Groups		N	Mean Rank	Sum of Ranks	U	Z	P
Reading Accuracy	Experimental	13	19,04	247,50	25,50	-3,183	0,001
	Control	14	9,32	130,50			
Total		27					

When Table 4 is examined, a significant difference is observed between the Reading Accuracy scores of the experimental group and the control group (U = 25.50; p = 0.001; p < 0.05). Since the rank mean of the experimental group (19.04) is higher than that of the control group (9.32), this difference favors the experimental group. This finding indicates that supporting word recognition at the "forming syllables from letters, words from syllables, and sentences from words" stage has a positive and significant effect on accurate reading performance. The effect size of this difference was evaluated using Cohen's d value, which indicates how many standard deviations the group means are apart, and the Eta-squared (η^2) value, which indicates how much of the variance in the test scores is related to the independent variable.

Table 5. Results Regarding the Effect Size of the Difference in Reading Accuracy Achievement Scores Between the Experimental and Control Groups

Groups		N	Mean	Standard Deviation	Cohen's d	Eta	Eta Squared
Reading Accuracy	Experimental	13	29,230	6,179	1,77	0,674	0,454
	Control	14	14,428	10,059			

Examining Table 5, it can be seen that the effect of the difference between the accurate reading performances of the experimental and control groups is large according to both the Eta-squared (η^2 = 0.45) and Cohen's d (d = 1.77) values (Büyüköztürk, Çokluk, & Köklü, 2011, pp. 169-171). Supporting word recognition explains 45% of the total variance.

The second hypothesis of this research is: " Supporting word recognition in early literacy instruction has a positive effect on the reading speed of first-grade students." To determine the accuracy of this hypothesis, the reading speed performance scores of 13 students in the experimental group and 14 students in the control group were compared using the Mann-Whitney U Test. The test results are presented in Table 6.

Table 6. Mann-Whitney U Test Results for the Reading Speed Achievement Scores of the Experimental and Control Groups

Groups		N	Mean Rank	Sum of Ranks	U	Z	P
Reading Speed	Experimental	13	18,35	238,50	34,50	-2,746	0,006
	Control	14	9,96	139,50			
Total		27					

Looking at the Table 6, a significant difference is observed between the reading speed performance scores of the experimental group and the control group (U = 34.50; p = 0.006; p < 0.05). Since the rank mean of the experimental group (18.35) is higher than that of the control group (9.96), this difference favors the experimental group. According to this finding, supporting word recognition at the "forming syllables from letters, words from syllables, and sentences from words" has a positive and significant effect on reading speed performance. The effect size of this difference was evaluated by using the Cohen's d and Eta-squared (η^2) values.

Table 7. Results Regarding the Effect Size of the Difference in Reading Speed Achievement Scores Between the Experimental and Control Groups

Groups		N	Mean	Standard Deviation	Cohen's d	Eta	Eta Squared
Reading Speed	Experimental	13	20,923	8,779	1,116	0,501	0,251
	Control	14	10,571	9,740			

Examining Table 7, it is observed that the effect of the difference between the reading speed performance of the experimental and control groups is large according to both the Eta-squared (η^2 = 0.25) and Cohen's d (d = 1.12) values (Büyüköztürk et al., 2011, pp. 169-171). Supporting word recognition at the "forming syllables from letters, words from syllables, and sentences from words" stage explains 25% of the total variance.

Conclusion and Discussion

This research was carried out to validate the hypothesis that enhancing word recognition during early literacy instruction, following the "Phonics-Based Early Reading and Writing Instruction" approach outlined in the Turkish Language Curriculum (MoNE, 2019, pp. 10-14), implemented in all first grades across Türkiye, would improve students' accuracy in reading and their reading speed. To achieve this goal, an intervention was implemented in the experimental group to support word recognition during the "forming syllables from letters, words from syllables, and sentences from words" stage, based on the following principles: The goal of teaching should not be limited to students merely decoding. In this process, students should be prevented from getting used to reading letter by letter or syllable by syllable. Word recognition should not be considered separate from the process. Students should be encouraged to search for meaning. Morphological awareness should be supported by providing words with morphological diversity.

Since accurate reading and reading speed are interrelated components of reading skills, the results of both hypotheses of this research are discussed together below:

The findings related to both hypotheses of the research reveal that supporting word recognition during the early literacy instruction process significantly improves both accurate reading and reading speed performance, and the impact of this support is substantial. This finding is consistent with Buckingham's (2020) views that systematic phonics instruction alone cannot guarantee reading success, that this success depends on the quality of the rest of the literacy curriculum, and that systematic phonics instruction should be part of a comprehensive program that includes phonemic awareness, fluency, vocabulary, and comprehension.

The "forming syllables from letters, words from syllables, and sentences from words" stage in the Early Literacy Phonics Instruction Approach is a critical phase for students to develop accurate and sufficiently fast reading skills. During this stage, there is a risk that students who are still learning to read may become accustomed to reading letter by letter or syllable by syllable. Gunning (2010, cited in Tracey & Morrow, 2012/2017, p. 105) also warns that trying to process all the letters in words may lead to the danger of getting used to reading letter by letter, which in turn slows down reading speed. The activities assigned to students and the tools used during this stage are crucial for developing both accurate reading and reading speed. In this research, to prevent students in the experimental group from becoming accustomed to reading letter by letter or syllable by syllable, consecutive syllables were not introduced by placing all previously introduced vowels before and after a newly introduced consonant. Instead, syllables were introduced when they could be combined with previously introduced units to form a word, and as soon as a syllable was introduced, it was immediately combined with the appropriate previously introduced units to form a word. The reading and writing of syllables is practiced with meaningful units that are words. In reading exercises, sentences and texts composed of words with syllables highlighted in different colors were not used. In contrast, during the observation of the control group, it was noticed that posters with words, sentences, and texts in which the syllables were written in different colors, were displayed on the classroom walls. Upon reviewing the students' notebook samples, it was determined that the students were writing and repeating the syllables independently of words. During the interview, the control group's teacher stated that they followed the sequence of syllables exactly as outlined in the textbook (Civelek et al., 2018) throughout the process. Textbooks are expected to be aligned with the curriculum, but when the curriculum lacks sufficient explanation, textbook authors fill in the gaps based on their interpretations. The deficiencies in the curriculum lead teachers to strictly follow the textbooks. During the interview, the control group's teacher also mentioned that they had students do reading and writing exercises with syllables independent of words, and that they used words, sentences, and texts with syllables written in different colors for reading exercises. These findings suggest that in the control group, word recognition was overlooked in favor of focusing on students' decoding abilities, leading to a habit of reading letter by letter or syllable by syllable, which ultimately reduced their reading speed. Similar results were reached in studies such as Akıncı et al. (2016) on " The Sound-Based Literacy Instruction" and Beyazıt's (2007)

master's thesis titled " Evaluation of Analysis Method and Sound Based Sentence Method in Gaining First Reading Writing Instruction with Different View Angle".

During the early literacy instruction process, students in the experimental group were encouraged to develop a habit of searching for meaning to support word recognition. To achieve this, no unit that does not appear in any Turkish word using the letters taught was introduced. Once a syllable was introduced, it was immediately combined with previously introduced appropriate units to form a word after its pronunciation was shown. After the pronunciation of the new word was demonstrated, it was combined with previously introduced suitable words to form a sentence. After the pronunciation of the new sentence was shown, it was combined with previously introduced suitable sentences to form a text. The meaning of each newly introduced word, sentence, and text was emphasized. No new letter was introduced until students had encountered enough words from their spoken language. In contrast, the following observations were made in the control group: units that do not appear in any Turkish word, as found in the textbook (Civelek et al., 2018), were introduced, and reading and writing exercises were conducted with these units. Some syllables were left as is, without being shown in a word. Some words were not shown in sentences and were left as is. Not showing enough texts other than those in the textbook. No verbal activities were conducted related to the meanings of the sentences and texts. In the experimental group, supporting students' search for meaning positively affected their accurate and sufficiently fast reading. This result is consistent with Miles and Ehri's (2019, p. 79) assertion that the spelling of words is stored in memory together with their pronunciation and meaning. Saracho and Spodek's (2002, pp. 174-179) views on this topic are as follows: Teachers must remember that reading requires more than just sounding out letters. In reading instruction, involving children in mechanical decoding often forces them to read very slowly without searching for meaning in the text. Reading instruction requires more than just phonics. During early childhood, mental development is rapid, and when children start school, they already have a large oral vocabulary and can use these words in accordance with the rules of their language in different and appropriate contexts. This knowledge supports their development into effective literates, so reading instruction methods should incorporate these natural resources.

During the early literacy instruction process, the morphological awareness of students in the experimental group was supported by providing morphologically diverse words. For this purpose, after reaching the syllables containing a morphological unit at the first opportunity when each new letter was given, these syllables were given successively in different words and the meanings of the words were emphasized; the students were supported to realize the meaning that the morphological unit added to the word and the sentence. For example, after the last letter of the first group was introduced, the syllable "-ni" was reached; the syllable was combined in succession with previously introduced words (anne, nine, ve aile) (mother, grandmother, and family) to form new words (anneni, nineni ve aileni) (your mother, your grandmother, and your family); the question "Whose?" was asked and the meaning of the words was emphasized; the words were used in sentences with previously introduced appropriate words (Nil ve anla) (Nil and understand). A text was created with the sentences (ANLA / Nil, anla. / Anneni anla. / Nineni anla. / Aileni anla.) (UNDERSTAND / Nil, understand. / Understand your mother. / Understand your grandmother. / Understand your family.), and the meaning of the text was emphasized. After reaching the syllable "-nin" with the same letter, another text was created and used for a meaning exercise, focusing on the question "Whose?". The text is as follows: NELİ? / Ali'nin keki neli? / İlke'nin keki neli? / Annenin keki neli?) (WHAT FLAVOR IS THE CAKE? / What flavor is Ali's cake? / What flavor is İlke's cake? What flavor is your mother's cake?). Memiş (2019) states that recognizing the semantic relationships between affixes and roots supports students' word recognition. Carlisle (2004, pp. 336-337) also notes that word and morpheme frequency, as well as word transparency, affect morphological learning from early childhood, and that instructional programs should focus on the information that word structure provides about meaning to support students' morphological awareness, which in turn improves their word reading skills. According to Memiş (2019), Adams emphasizes that while inflectional and compound morphology develop later, exposing children to derivational morphology as early as possible is crucial for literacy development.

Over the past fifty years, many studies in the field have shown that phonemic awareness and knowledge of letter-sound relationships facilitate learning to read, and this idea has been widely accepted worldwide. According to Cunningham and Cunningham (1992), the results of many studies indicate that children's early decoding development at the beginning of first grade is a strong predictor of their reading success at the end of the year; there is a strong relationship between the ability to decode words, word recognition, and accurate reading; and decoding and phonemic awareness are interrelated processes. In other words, recognizing the sounds that make up a spoken word and recalling the corresponding letter(s) to write it support are the basic skills that enable learning to write, while recognizing the letters that make up the seen word and remembering the sounds of these letters and knowing how to pronounce them together are the basic skills that enable learning to read. The valid idea that phonemic awareness and knowledge of letter-sound relationships should serve as the foundation of early literacy instruction has led some theorists and practitioners to the mistaken conclusion that "In this case, early literacy instruction must be conducted using the phonics method.". Camilli, Kim, and Vargas (2008) note that the current literature on systematic phonics instruction does not provide strong evidence on which activities should be prioritized or how these activities should be combined. In Türkiye, the term " Phonics-Based Early Reading and Writing Instruction " is used in the Turkish Language Curriculum (MoNE, 2019, p. 10) as an approach to early literacy instruction, without specifying any particular method. However, the explanations and examples provided in the same curriculum (pp. 10, 12-14) clearly show that the method expected to be applied is a systematic phonics method. Yet, the approach of prioritizing phonemic awareness and letter-sound knowledge can be implemented in many different early literacy instruction methods. For example, Cunningham and Cunningham, who also argue that phonemic awareness and knowledge of letter-sound relationships facilitate learning to read, state in their article " Making Words: Enhancing the Invented Spelling-Decoding Connection" (1992) that the "Making Words" initiative they propose to support children's decoding skills and improve their reading should not be perceived as a standalone teaching method, but rather as a regular part of any reading instruction process. Moreover, this initiative is based neither on a classic nor on a systematic phonics method. In this initiative, children are not presented with letters in a fixed sequence by the program, textbook, or teacher, followed by specific syllables and words formed from these letters, and asked to read and write them. This is a method consisting of play-based activities where students, form words in groups, from short to long, using movable letters whose names/sounds they already know, allowing them to engage individually and actively in the process. These activities require children to use words from their oral communication vocabulary based on their existing phonemic awareness and letter-sound knowledge, while also developing their phonemic awareness and letter-sound knowledge to support word recognition.

For children learning to read and write in transparent languages, where there is a one-to-one correspondence between sounds and letters, acquiring knowledge of letter-sound relationships and gaining phonemic awareness is easier compared to children learning to read and write in languages like English, which have irregular letter-sound relationships; thus, in languages with regular letter-sound relationships, letters and words can be taught simultaneously (Lerkkanen, 2003). According to Akıncı et al. (2016), McGuiness stated that an inappropriate teaching method could eliminate the advantages of a transparent alphabet. Similarly, in her study titled “The Factors Affecting Meaningful Reading through Phonetic Based Method,” Kutluca Canbulat (2013) concluded that the current method does not accurately reflect the functional and standard structure of Turkish, causing students to read hesitantly.

As a result, it is believed that a holistic method, which prioritizes phonemic awareness and knowledge of letter-sound relationships, rather than blending or analytical methods, would not only support students in reading accurately and fluently but also in reading with comprehension. Torgerson, Brooks, Gascoine, and Higgins (2019), in their study titled “Phonics: reading policy and the evidence of effectiveness from a systematic ‘tertiary’ review,” which compares the effect of systematic phonics (letter-sound relationship) instruction on reading accuracy with all language approaches and different phonics teaching approaches, concluded the following: Systematic phonics instruction can be incorporated into reading instruction; there is insufficient evidence on which phonics instruction

approach and at what intensity is more effective; phonics instruction creates a balance with all language approaches; if each country finds a phonics-based literacy instruction that suits its own characteristics by comparing different approaches through experimental research, the “reading wars” will end. Lerkkanen (2003), in his research titled "Learning to Read: Reciprocal Processes and Individual Pathways," also stated that when planning literacy instruction, all components of the process should be considered in a balanced manner.

In this study, both in the experimental and control groups, the teaching of early literacy was based on supporting phonemic awareness and teaching of the letter-sound relationship, in accordance with the Turkish Language Curriculum (MoNE, 2019, pp. 10-14); for each letter introduced, phonemic awareness activities were first conducted, followed by teaching the pronunciation and writing of the letter. Then, following the instructions in the Curriculum, letters were combined into syllables, syllables into words, and words into sentences. However, at the blending stage in the experimental group, work was carried out in line with the fundamental principles that support word recognition. Students were encouraged to develop their decoding skills through words, preventing them from becoming accustomed to reading letter by letter or syllable by syllable. Special emphasis was placed on providing morphologically diverse words and focusing on their meanings to support morphological awareness. As a result, supporting word recognition at the "forming syllables from letters, words from syllables, and sentences from words" stage had a positive effect on students' accurate reading and reading speed.

Recommendations

1. Recommendations for the "forming syllables from letters, words from syllables, and sentences from words" stage of the " Phonics-Based Early Reading and Writing Instruction " approach in the Turkish Language Curriculum (MoNE, 2019): Students' word recognition should be supported throughout the early literacy instruction process. The goal of teaching should not be limited to students merely decoding. Students should be prevented from getting used to reading letter by letter or by spelling. Students should be encouraged to develop the habit of searching for meaning while reading. Morphological awareness should be supported by providing words with morphological diversity. To achieve this, the following points should be considered: Consecutive syllables should not be introduced by placing all previously introduced vowels before and after a newly introduced consonant. A syllable should only be introduced if it can form a new syllable or word when combined with a previously introduced unit. Reading and writing exercises practiced with meaningful units. After the initial pronunciation is demonstrated, repeated reading and writing exercises with isolated syllables, detached from words, should not be conducted. Sentences and texts composed of words with syllables highlighted in different colors should not be used. Units that do not exist in any Turkish word should not be introduced. Once a syllable is introduced and its pronunciation demonstrated, it should immediately be combined with previously introduced appropriate units to form a word. Once a word is introduced and its pronunciation demonstrated, it should immediately be combined with previously introduced appropriate words to form a sentence. Once a sentence is introduced and its pronunciation demonstrated, it should immediately be combined with previously introduced appropriate sentences to form a text. The meaning of each newly introduced word, sentence, and text should be emphasized. A new letter should only be introduced after students have encountered enough words from their spoken language. After reaching a syllable that contains a morphological unit, it should be presented one after the other in different words, with an emphasis on their meanings.

2. Recommendations for the Turkish Language Curriculum**:** In the Turkish Language Curriculum (MoNE, 2019), the adopted approach for early literacy instruction is named " Phonics-Based Early Reading and Writing Instruction," but no specific method is introduced. However, the explanations and examples provided show that the method is a systematic phonics method. The Curriculum should include detailed explanations about the potential drawbacks of implementing this mandatory method and the measures that can be taken to prevent these drawbacks. Ideally, after emphasizing phonemic awareness and letter-sound relationships, which facilitate learning to read and write, the Curriculum should provide appropriate explanations regarding several possible methods that can be followed starting from these principles and let teachers decide the method.
3. Method reccomendation for early literacy instruction: In almost every language, phonemic awareness and knowledge of letter-sound relationships are essential for learning to read and write. For early literacy instruction that begins with these principles, there is no need to use either blending or analytical methods. A holistic early literacy instruction method based on phonemic awareness and letter-sound relationship would be useful and effective in helping students develop accurate, fast, and meaningful reading skills. This method could be called the "Systematic Phonics Method". The following steps could be taken to teach literacy using this method: First, determine the order in which letters will be introduced by identifying words commonly used in students' daily spoken language. The sequence of the letters should be based on the frequency of use of these words. After supporting phonemic awareness based on the sound of the letter to be introduced, the pronunciation and writing of the letter are taught. Words formed from the newly introduced letter and previously taught letters are directly introduced, paying attention to the principle of moving from simpler to more complex words in terms of the number of letters and syllables. Words that are morphologically similar or different are introduced consecutively to support morphological awareness. The pronunciation, spelling and meaning of the words are emphasized. Thus, it is ensured that students recognize words with the integrity of pronunciation-spelling-meaning. By conducting reading, writing, and comprehension exercises with sentences and texts formed from these introduced words, students will develop accurate, fast, and meaningful reading skills by the end of the early literacy instruction process.
4. Recommendations for the relevant units of the Ministry of National Education (MoNE): MoNE should not only permit but also encourage research in which various early literacy instruction methods are applied and compared on large sample groups.
5. Recommendations for future research: This research could be expanded to include reading comprehension as a dependent variable and conducted on larger samples. This is important both in terms of the close relationship between accuracy, speed, and comprehension in reading, and for increasing the generalizability of the results.

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