

UC Riverside

UC Riverside Previously Published Works

Title

A Synthesis of Reading Prosody: Evaluating Phrasing and Syntax Interventions

Permalink

<https://escholarship.org/uc/item/7b74d610>

Journal

Reading & Writing Quarterly, ahead-of-print(ahead-of-print)

ISSN

1057-3569

Authors

Shhub, Aya
Jimenez, Zaira
Solis, Michael

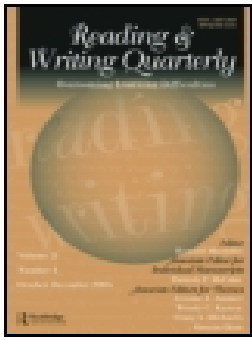
Publication Date

2023

DOI

10.1080/10573569.2022.2147464

Peer reviewed



Reading & Writing Quarterly

Overcoming Learning Difficulties

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/urwl20>

A Synthesis of Reading Prosody: Evaluating Phrasing and Syntax Interventions

Aya Shhub, Zaira Jimenez & Michael Solis

To cite this article: Aya Shhub, Zaira Jimenez & Michael Solis (2023): A Synthesis of Reading Prosody: Evaluating Phrasing and Syntax Interventions, Reading & Writing Quarterly, DOI: [10.1080/10573569.2022.2147464](https://doi.org/10.1080/10573569.2022.2147464)

To link to this article: <https://doi.org/10.1080/10573569.2022.2147464>



Published online: 05 Jan 2023.



Submit your article to this journal [↗](#)



Article views: 66



View related articles [↗](#)



View Crossmark data [↗](#)



A Synthesis of Reading Prosody: Evaluating Phrasing and Syntax Interventions

Aya Shhub , Zaira Jimenez, and Michael Solis

University of California, Riverside, CA, USA

ABSTRACT

Research on prosody suggests it is an important consideration for both reading fluency and reading comprehension however research on how to teach prosody is limited. This systematic review expands the understanding of prosody by examining intervention studies of prosody focused on instruction to improve syntax and phrasing outcomes. A total of 18 studies between 1985 and 2020 ($N=770$, Grades K-12) met inclusion criteria. Six studies were experimental and 13 were quasi experimental. Intervention instruction focused on modeling, instruction on a specific prosody component (e.g., syntax and phrasing), repeated reading, partner reading, independent reading, silent reading, choral reading, readers theater, and computer programs. Overall findings indicate interventions which include repeated reading and one or more of the following, modeled reading or immediate feedback have larger effects on prosody compared to interventions that include repeated reading and only instruction on a specific prosody component (e.g., syntax and phrasing).

Reading prosody interventions: instruction supporting improvements with phrasing and syntax

Reading prosody is considered a primary component of fluency in addition to the more frequently investigated components of speed and accuracy (automaticity) (Wolters et al., 2022). The subcomponents of reading prosody have been defined to include one or more of the following: expression (e.g., pitch and tone), syntax (e.g., grammatical cues as idea units), and phrasing/smoothness (e.g., word grouping) (Hudson et al., 2008; Kuhn, 2005; Rasinski et al., 2011). Research examining reading prosody has shown that improving reading prosody performance is critical as it supports fluency, which is important for supporting students' ability to understand text (Calet et al., 2017; Kuhn et al., 2010; 2018; Kuhn & Stahl, 2003; Zutell et al., 2012). Considering the 2019 findings from the NAEP, indicating a high percentage of below basic fourth-grade students with disabilities (70%) and eighth-grade students with disabilities (63%), researchers need to continue investigating instructional approaches that support better student outcomes. Findings from Diane (2005) indicated that a subsample of fourth graders who took the NAEP reading assessment and scored below basic were found to be "non-fluent" readers. This furthers the argument that researchers need to investigate stronger instructional approaches to support better student outcomes.

CONTACT Aya Shhub  ashhu001@ucr.edu  University of California, Riverside, CA, USA.

This article has been republished with minor changes. These changes do not impact the academic content of the article.

Reading prosody research

When looking at the relationship between reading prosody and comprehension, the limited research suggests two possible relationships. One relationship is that reading prosody facilitates comprehension (Dowhower, 1991; Kuhn et al., 2010; Kuhn & Stahl, 2003). The second relationship is that reading prosody is an outcome of reading comprehension (Kuhn et al., 2018; Zutell et al., 2012). While these two explanations differ, they both suggest that prosody is important for reading comprehension development.

Early research on reading prosody found that interventions which included a repeated reading component supported students' ability to read slowly and in meaningful phrases (Dowhower, 1987). These findings provided initial evidence that the ability to read with prosody is an important component of oral reading fluency which also supports comprehension outcomes (e.g., Kuhn, 2005; National Reading Panel, 2000). Miller and Schwanenflugel (2008) suggested that the development of prosodic features (e.g., pausal intrusions) in the early school grades (e.g., first and second grade) predict a student's ability to read fluently, which supports future development of reading comprehension.

Alternatively, research suggests that rate and accuracy are a prerequisite for reading prosody. Once students have achieved quick and accurate reading, they can begin achieving reading prosody outcomes that support reading comprehension enhancement (Allington, 1983; Dowhower, 1987; 1991; Young et al., 1996). More specifically, when controlling for rate and accuracy, reading prosody measured through difficult text accounted for a moderate percentage of variance in comprehension scores (Benjamin & Schwanenflugel, 2010). These findings support research which indicates that an increase in a student's reading fluency (e.g., rate, accuracy) frees up limited working memory resources allowing for higher order processes (e.g., comprehension, prosody) (Kuhn et al., 2018; LaBerge & Samuels, 1974).

Reading prosody intervention research

Problems with prosody extend across various communication disorders, which could explain why studies focusing on prosody interventions primarily target expressive skills within the context of language (Hargrove et al., 2009). In a systematic review, Hargrove et al. (2009) conceptualized prosody as changes in stress, pitch, and intonation. The researchers aimed to identify intervention components and their effect on prosody (e.g., stress, pitch, intonation). Findings indicated variations across intervention components with the four most common including (a) visual feedback (e.g., SpeechViewer), (b) imitation, (c) metalinguistic explanations, and (d) verbal feedback. Findings also indicate positive outcomes for increased pitch, intonation, and appropriate use of stress. Although this systematic review provides valuable findings regarding improvements in expressive skills these findings do not provide sufficient information regarding reading prosody instruction or reading prosody outcomes (e.g., phrasing, smoothing, syntax).

Purpose of this study

This systematic review aims to evaluate the difference in reading prosody outcomes across participant risk (e.g., neurotypical, at risk readers, transitional readers), intervention instructional features, delivery agent (e.g., researcher-implemented, teacher-implemented), and study quality. Identifying these differences will support researchers and practitioners understanding of the most effective reading prosody instructional features and under which conditions they are most effective. Furthermore, this study aims to expand the understanding of reading prosody interventions

by operationalizing reading prosody interventions to include appropriate phrasing, smoothness, and appropriate syntax, rather than just expressive skills as part of reading. This study conceptualizes reading prosody as: appropriate phrasing/smoothness (e.g., grouping of words) and appropriate use of syntax (e.g., adherence to sentence structure) (Kim et al., 2021).

Research questions

This systematic review answers the following research questions: What are the features of instruction for reading prosody interventions for students in grades K-12th grade? How do the effects of reading prosody interventions differ across types of readers? How do the effects of reading prosody interventions differ based on delivery agent (e.g., researcher, teacher)? How do the effects of reading prosody interventions differ for pre-established quality indicators?

Method

Search procedure and criteria

The databases of Education Resources Information Center (ERIC) and PsycINFO were searched using the following terms: prosody, syntax, phrasing, smoothness, prosodic, prosody intervention, fluency, and fluency intervention. Peer-reviewed papers and dissertations published between 1985 through 2020 were included. These years were selected to ensure that articles from the last 35 years could be identified. Due to the dearth of peer reviewed articles on reading prosody interventions specifically, we included dissertations to increase the volume of work in support of the review. Reference sections from all included studies were reviewed for potential studies. In addition, references in previous systematic review studies examining reading fluency and reading prosody interventions were inspected for applicable papers to review (Hargrove, 2013; Hargrove et al., 2009; Hudson et al., 2008). Finally, a hand search of all journals of which included studies were published was completed for 2018 and 2019.

The initial search resulted in 342 studies (Figure 1). A total of 18 studies met the selection criteria for the systematic review. Studies were selected based on the following criteria:

1. Articles were published between 1985 through 2020 in peer reviewed journals and published dissertations. To ensure all possible studies were identified, the time frame was selected based on the earliest peer reviewed study identified during the initial search.
2. Prosody was conceptualized with one or more of the following dimensions: appropriate phrasing/smoothness (e.g., grouping of words), and appropriate use of syntax (e.g., adherence to sentence structure).
3. Studies included reading prosody as the focus of instruction or as a subcomponent of a multicomponent reading intervention.
4. Study designs included dependent measure(s) of reading prosody including standardized or researcher-developed rating scales of reading prosody. Measures of reading prosody focused only on pitch and tone without disaggregated findings of the other dimensions of reading prosody were not included (Kim et al., 2021).
5. Participant samples included one or more of the following student groups: typically developing, no identified disability, and/or identified disability. Participants samples included Kindergarten through 12th grade and had samples with all English-speaking students.
6. The study employed an experimental or quasi-experimental design with a minimum of two groups. Studies comparing two or more treatments were included.

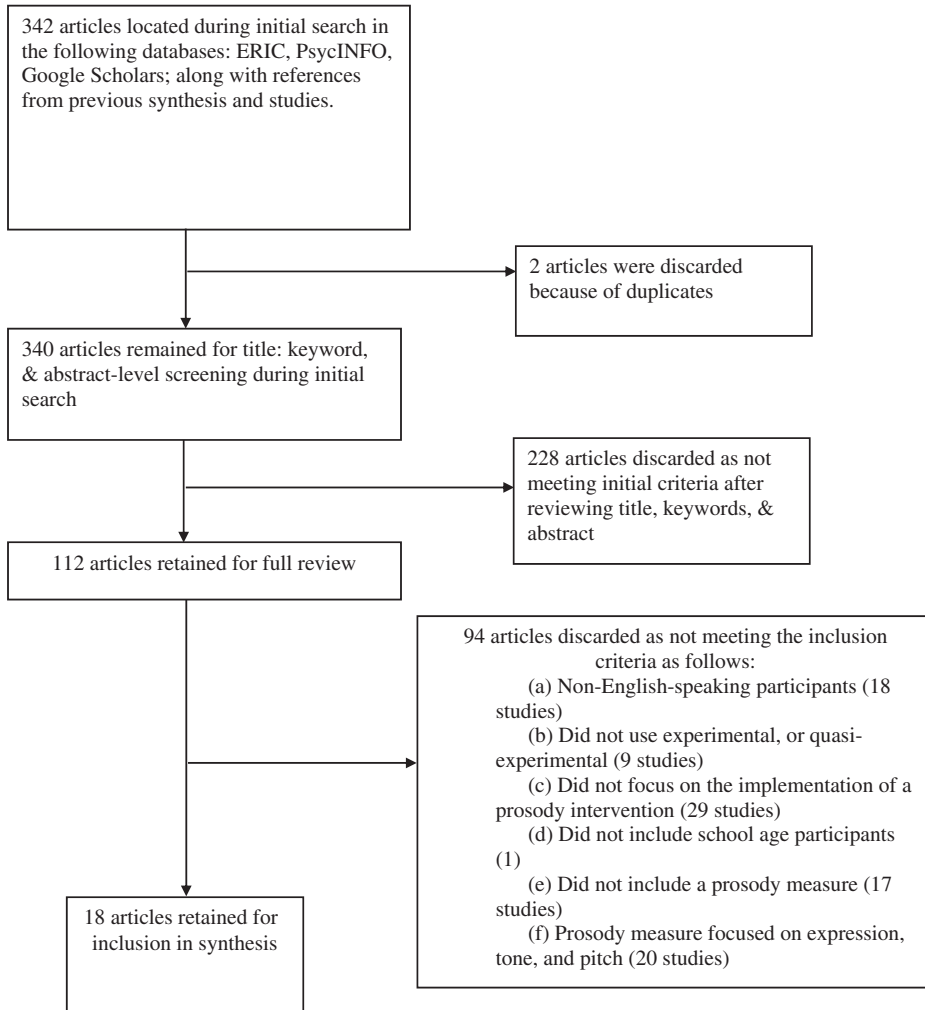


Figure 1. The preferred reporting items for systematic reviews flowchart.

Data analysis

Coding procedures

A detailed code sheet was adapted from a previous systematic review Maynard et al. (2017). The code sheet was used to organize the following components: (a) author and study design, (b) participant information, (c) reliability and fidelity information, (d) treatment description, (e) reading prosody dependent measure, and (f) findings (e.g., phrasing, smoothness, syntax).

Two raters were trained on the use of the code sheet by the first author. Independent responses were used to calculate percent agreement. Each rater independently coded an article and percent agreement was calculated. The first author was the gold standard to establish reliability for articles that were coded. Reliability for the first article was 85% and for the second article was 100%. All remaining articles were independently coded and double coded for

accuracy. The interrater reliability for double coding between the first and second author was 94%. All discrepancies in coding were resolved via discussion between the two coders and the third author.

Calculation of effect sizes

Hedges's g was used to calculate all effect sizes. Hedges's g was selected because it provides a conservative estimate of the magnitude of effect when used to calculate effect size for studies with small sample sizes (Hedges et al., 1985). Effect sizes of post-test scores were calculated for all studies with sufficient information (e.g., descriptive statistics, means, standard deviation, post-test scores). Each effect size was calculated individually by the first author and checked for accuracy by the second author. We interpreted the magnitude of effects with $g=0.2$ considered "small" effect size, $g=0.5$ representing a "medium" effect size and $g=0.8$ a "large" effect size. Of the 18 studies that met inclusion criteria, 17 provided sufficient data for the calculation of effect sizes. The one study that did not report sufficient data to calculate effect sizes was used to support the descriptive findings of this study and not included in overall findings.

Results

The results are organized to provide an overview of study features followed by an analysis of reading prosody outcomes based on reading prosody intervention instructional features (e.g., repeated reading and immediate feedback, modeled reading, multiple instructional strategies), participant characteristics (e.g., at risk readers, transitional readers, typical readers), delivery agent (e.g., researcher implemented, teacher implemented), study quality, and finally a summary of overall findings of effects across all studies. The goal is to support researchers' and practitioners' understanding of the effects of reading prosody instructional strategies and under which conditions they are most effective.

Study features

A total of 18 studies met our inclusion criteria: six experimental studies, and 12 quasi-experimental studies. A total of 875 students were represented. Study total sample sizes ranged from 18 to 90 ($M=48$). Participants were identified as at-risk readers ($n=329$), transitional readers ($n=178$), unspecified disability ($n=18$), learning disability ($n=34$), dysfluent readers ($n=57$), and typical readers ($n=259$). No studies of grades 9–12 were located despite being part of the search criteria. Fourteen studies reported the number of sessions which ranged from 1 to 100 sessions ($M=16$). Session duration ranged from 15 minutes to 60 minutes ($M=45$ minutes). See [Table 1](#) for a summary of study features.

Across the studies a total of 32 different treatment conditions were provided. See [Table 2](#) for a summary of treatments, measure, and findings.



Table 1. Study features.

Study	Study design	Participants	Grade	Duration	Reading material	Person implementing	Quality
1. Ardoin et al. (2013) Treatment fidelity Checklist	Experimental	76 students (Transitional Readers) T1 = 30; T2 = 36	3rd, 4th	1 Session	Expository Passage DIBELS (4th grade, modified to include first 154 words)	Researcher	DNQ
2. Clevon (2014)* Treatment fidelity NR	Quasi-Experimental	34 students (Learning Disability) T = 17; C = 17	2nd	90 sessions; 5/week	Leveled Text, Core reading books	Researcher and Teacher	DNQ
3. Devine (2010)* Treatment fidelity NR	Experimental	90 students (At Risk Readers) T1 = 45; T2 = 45	2nd	40 sessions; 5/week	Solloquy Reading Program	Teacher	HQ
4. Drumheller (2008) Treatment fidelity Script	Quasi-Experimental	49 students T1 = 16; T2 = 16; C1 = 9; C2 = 8	2nd	17 sessions; 1/week	Scholastic Blue Collection	Researcher and Teacher	DNQ
5. Ellis (2009)* Treatment fidelity Checklist & Observations	Quasi-Experimental	57 students T = 30; C = 27	3rd	50 sessions; 5/week	Harper Collins "I Can Read" Levels (2nd Grade)	Teacher	HQ
6. Farrell (2015)* Treatment fidelity Checklist & Observation	Quasi-Experimental	50 students T = 26; C = 24	5th, 6th	60 sessions; 5/week	Reading Passages (250–400 words)	Teacher	HQ
7. Jefferson et al. (2017) Treatment fidelity Observations, Checklists	Quasi-Experimental	83 students T = 53; C = 30	3rd	100 sessions; 5/week	SRA Corrective Reading Decoding Strategies	Teacher	HQ
8. Keehn (2003) Treatment fidelity NR	Experimental	66 students (Transitional Readers)	2nd	9 weeks	Readers Theater Scripts (Adapted)**	Teacher	DNQ
9. Kuhn (2005) Treatment fidelity NR	Experimental	24 students (At Risk Readers) T1 = 5; T2 = 6; T3 = 6; C = 6	2nd	18 sessions; 3/week	Reading Passages (First and Second Grade)***	Researcher	AQ
10. LeVasseur et al. (2008) Treatment fidelity NR	Quasi- Experimental	36 students (Transitional Readers) T1 = 36; T2 = 36; T3 = 36	2nd	9 sessions; 3/week	Fictional Passages; Lexile level 500-520	Researcher	DNQ
11. Moyer (2012)* Treatment fidelity NR	Quasi-Experimental	18 students (Disability not Specified) T1 = 10; T2 = 8	8th	80 sessions; 5/week	AIMSweb grade level passage	Researcher	AQ
12. Overstreet (2015)* Treatment fidelity Observation, Checklists	Quasi- Experimental	20 students T1 = 10; T2 = 10	3rd	21 sessions; 3/week	AIMSweb and CBM Passages	Researcher or Teacher	HQ
13. Pierce (2012)* Treatment fidelity Self-reflection journal	Quasi-Experimental	61 students (At Risk Readers) T1 = 31; T2 = 30	2nd	50 sessions; 5/week	Fiction/Non-fiction Narrative passages and Poems	Teacher	DNQ
	Quasi- Experimental		8th			Teacher	HQ

14. Van Wig et al. (2016)* Treatment fidelity Observations					2 weeks; 240 total minutes	High interest accessible passages	
15. Young et al. (1996) Treatment fidelity NR	Experimental	18 students (At Risk Readers, Reading Disability) T1 = 11; T2 = 7 40 students (At Risk Readers) T1 = 10; T2 = 10; T3 = 10; T4 = 10 52 students (At Risk Readers) T1 = 29; C = 23 57 students (Dysfluent Readers) T1 = 20; T2 = 19; C = 18 44 students (At Risk Readers) T1 = 30; C = 14	5th	1 Session	Prose Passage (3 rd grade)	Researcher	AQ
16. Young et al. (2015) Treatment fidelity Observations	Quasi-Experimental		3rd, 4th, 5th	5/week; 399 total minutes	Leveled reading passages	Researcher and Teacher	DNQ
17. Young et al. (2018) Treatment fidelity Observations	Experimental		1st, 2nd, 3rd	3/week; 420 total minutes	Leveled reading passages	Researcher	DNQ
18. Zimmerman et al. (2019) Treatment fidelity Observation, Rubric	Quasi-Experimental		1st, 2nd, 3rd	19 sessions	Grade level reading passage	Researcher	DNQ

Note: NR: not reported; T1: treatment group 1; T2: treatment group 2; T3: treatment group 3; T4: treatment group 4; ELL: English language learner; HQ: high quality; AQ: acceptable quality; DNQ: does not qualify.

*Dissertation Study.

**Busching, 1981; Feitelson, Kita, & Goldstein, 1986; Sloyer, 1982.

***As referenced by Fountas and Pinnell (1999).

Table 2. Summary of measures and outcomes.

Study	Intervention description	Measures	Findings
1. Ardoin et al. (2013)	T1: Example and non-example models of prosody with independent reading and feedback. T2: Repeated reading with feedback.	Researcher Developed Prosody Rating Form ^a	Pauses between words: T1 vs. T2, ES= -0.30 Pauses after commas: T1 vs. T2, ES = 1.09 Pauses after periods: T1 vs. T2, ES = 1.26 Pauses between paragraphs: T1 vs T2, ES= 1.02
2. Cleven (2014)* Comparison Business as usual	T1: Neurological Impress Method (Scaffolded text, model prosody, feedback, repeated reading)	Research Developed Multidimensional Fluency Rubric ^b	Prosody: T1 vs C, ES= 0.46
3. Devine (2010)*	T1: Text-recognition software program; Models of fluency, text chunking, and audio feedback. T2: High frequency words and phrases instruction within guided reading.	Researcher Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs T2, ES= -0.57
4. Drumheller (2008)* Comparison C1-Business as usual; High Readers C2-Business as usual; Low Readers	T1: Modeled reading, student and teacher short lesson, partner reading: listening only (Silent Readers) T2: Modeled reading, student and teacher short lesson, partner reading (Oral Readers)	Researcher Developed Multidimensional Fluency Rubric ^b	Prosody: T1 vs. C1, ES= -0.73 T2 vs. C1, ES= -1.40 T1 vs. C2, ES= 2.06 T2 vs. C2, ES= 0.75 Smoothness: T1 vs. C1, ES= -0.60 T2 vs. C1, ES= -1.20 T1 vs. C2, ES= 1.48 T2 vs. C2, ES= 0.60 Phrasing: T1 vs. C1, ES= -1.53 T2 vs. C1, ES= -0.68 T1 vs. C2, ES= 1.19 T2 vs. C2, ES= 0.84
5. Ellis (2009)* Comparison Business as usual	T1: Echo read, partner reading, repeated reading, choral reading.	Standardized NAEP Oral Reading Fluency Scale ^d	Prosody: T1 vs C, ES= 0.12
6. Farrell (2015)* Comparison Business as usual	T1: Repeated reading with feedback. Independent reading and partner reading.	Research Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs C, ES= 1.66
7. Jefferson et al. (2017) Comparison Business as usual	T1: Repeated reading, comprehension activity, and guided lesson targeting area of need.	Research Developed Oral Fluency Rater Scale ^e	Pausing: T1 vs. C, ES= -0.82 Stress: T1 vs. C, ES= -0.69 Not Reported**
8. Keehn (2003)	T1: Prosody mini lesson. Prosody model. Independent and partner reading. T2: Readers Theater. Repeated reading.	Standardized NAEP Oral Reading Fluency Scale ^d Research Developed Diagnostic Fluency Assessment ^f	
9. Kuhn (2005) Comparison Business as usual	T1: Modeling; Positive feedback; oral rendition of practiced text T2: Echo or choral reading; T3: Expressive reading by researcher	Standardized NAEP Oral Reading Fluency Scale ^d	Fluency: T1 vs T2, ES= 0.16 T1 vs. T3, ES= 1.10 T1 vs. C, ES= 0.53 T2 vs. T3, ES= 1.12 T2 vs. C, ES= 0.60 T3 vs. C, ES= 0.41
10. LeVasseur et al. (2008)	T1: Modeled reading. Lesson on change in pitch and pauses. Repeated reading with feedback. T2: Word grouping lesson. Modeled reading. Lesson on change in pitch and pauses. Repeated reading and feedback.	Researcher Developed NAEP Oral Reading Fluency Scale Adapted ^g	Phrasing (Main Effect): T1 vs T2, ES= -0.87 T1 vs. T3, ES = 0.26 T2 vs. T3, ES = 1.20 Phrasing (Transfer Effect) T1 vs T2, ES= -0.28 T1 vs. T3, ES = 0.00 T2 vs. T3, ES = 0.32

(continued)

Table 2. Continued.

Study	Intervention description	Measures	Findings
11. Moyer (2012)*	T3: Word pronunciation lesson. Repeated independent reading of word list.		
	T1: Special education class repeated reading with feedback.	Standardized NAEP Oral Reading Fluency Scale ^d	Prosody: T1 vs. T2, ES = 1.35
12. Overstreet (2015)*	T2: General education class repeated reading with feedback.	Researcher Developed Multidimensional Fluency Rubric ^b	
	T1: Partner reading with repeated reading. T2: Partner reading with repeated reading. Explicit group and individual instruction on prosody.	Researcher Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs T2, ES= -0.03
13. Pierce (2012)*	T1: Repeated reading of poetry with prosody model.	Researcher Developed Multidimensional Fluency Scale ^c	Phrasing: T1 vs. T2, ES= 0.09
	T2: Repeated reading of narrative with prosody model.		Smoothness: T1 vs. T2, ES = 0.26
14. Van Wig (2016)*	T1: Independent reading with reflection followed by reading strategy instruction.	Researcher Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs. T2, ES= -0.52
	T2: Reading strategy instruction followed by independent reading with reflection.		
15. Young et al. (1996)	T1: Repeated reading of word list with immediate feedback.	Researcher Developed Oral Reading Fluency Scale ^h	Within Story Prosody: T1 vs. T2, ES = 0.29
	T2: Modeled expressive reading.		T1 vs. T3, ES = 0.14
	T3: Repeated reading of passage with immediate feedback.		T1 vs. T4, ES = 0.14 T2 vs. T3, ES = 0.14
	T4: Repeated reading with expressive model.		T2 vs. T4, ES = 0.15 T3 vs. T4, ES = 0.00
			Across Story Transfer Prosody: T1 vs. T2, ES= 0.16 T1 vs. T3, ES= 0.16 T1 vs. T4, ES= 0.00 T2 vs. T3, ES= 0.00 T2 vs. T4, ES = 0.16 T3 vs. T4, ES = 0.16
16. Young et al. (2015) Comparison Business as usual	T1: Choral reading with model	Researcher Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs C, ES = 0.75
17. Young et al. (2018) Comparison Business as usual	T1: Choral reading with model	Researcher Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs C, ES = 0.10
	T2: Choral reading with model, repeated reading		T1 vs T2, ES= -0.49 T2 vs C, ES = 0.55
18. Zimmerman et al. (2019) Comparison Business as usual	T1: Modeled reading with feedback. Followed by independent and partner reading.	Researcher Developed Multidimensional Fluency Scale ^c	Prosody: T1 vs C, ES = 0.48

Note: ES: effect size; C: control T1: treatment group 1; T2: treatment group 2; T3: treatment group 3; T4: treatment group 4.

*Dissertation Study.

**Effect size was not calculated because sample sizes were not reported.

^aArdoin et al. (2013).

^bZutell and Rasinski, (1991).

^cRasinski et al. (2009).

^dU.S. Department of Education (2002).

^eFountas and Pinnell (2006).

^fMartinez, Roser & Strecker (1999).

^gNational Center for Education Statistics (1995).

^hAllington and Brown (1979); Allington (1983); Rasinski et al. (2009).

Effects across instructional features of reading prosody interventions

Similar to previous research reviews (e.g., Hargrove et al., 2009) the identified studies include interventions with various techniques including immediate feedback, modeling, repeated reading, partner reading, silent reading, echo reading, choral reading, readers theater, computer programs, and guided lessons on a specific reading prosody component (e.g., phrasing, smoothing, syntax). With the three most common broad categories being: (1) repeated reading and immediate feedback, (2) modeled reading, and (3) multiple instructional strategies.

Repeated reading and immediate feedback

Interventions within the group of repeated reading and immediate feedback were those which focused on students reading a passage more than once and receiving immediate corrective/affirmative feedback on their phrasing, smoothness, and adherence to syntax after each read (Alber-Morgan et al., 2007). Three of the included studies examined the effect of repeated reading paired with immediate feedback and found moderate to large effects ($ES = 0.52 - 1.66$) (Farrell, 2015; Moyer, 2012; Van Wig, 2016).

Modeled reading

Interventions within the group of modeled reading were those which focused on providing a model read of the passage with exaggerated phrasing, smoothness, and adherence to syntax. This allows students to be exposed to accurate and correct reading patterns (Chomsky, 1976; Dowhower, 1991; Hoffman, 1987; Snow et al., 1982). Six studies examined the effect of modeling on reading prosody. Effect sizes for only 5 studies could be calculated and found small to large effects ($ES = 0.09 - 1.53$) (Cleven, 2014; Drumheller, 2008; Ellis, 2009; Keehn, 2003; Pierce, 2012; Young et al., 1996; Zimmerman et al., 2019).

Multiple instructional strategies

Interventions within the group of multiple instructional strategies were those which focused on utilizing multiple strategies within one instructional period to address different fluency components (Morris et al., 2012). These instructional features include computer programs, modeling, repeated reading, partner reading, readers theater, feedback (related to phrasing, smoothness, and syntax), and instruction on a specific reading prosody component (e.g., syntax and phrasing). Seven studies examined the effects of using multiple instructional strategies on reading prosody and found small to large effects ($ES = 0.00 - 1.20$) (Ardoin et al., 2013; Devine, 2010; Jefferson et al., 2017; Kuhn, 2005; LeVasseur et al., 2008; Overstreet, 2015; Young et al., 1996; 2018).

Effects across participant characteristics

To analyze differences across participant type in terms of reading abilities, three groups were created: (1) at risk readers (e.g., specific learning disability, dysfluent readers, disability not specified), (2) transitional readers (e.g., slow word-by-word reading with adequate decoding of words, and no specified learning or reading disability), and (3) typical readers (e.g., neurotypical students).

Risk criterion

11 of the identified studies disaggregated their findings through intervention (e.g., at risk readers, transitional readers) and control groups (e.g., typical readers). This allowed for effect size calculation and analysis. Of the 11 studies who reported student risk category, three reported

identifications of risk based on state assessment the year prior to the intervention (Moyer, 2012; Van Wig, 2016; Zimmerman et al., 2019). Three studies reported identification based on classroom teacher reports and student work samples (Drumheller, 2008; Ellis, 2009; Farrell, 2015). The remaining three studies reported identification based on findings from standardized measures (Cleven, 2014; Kuhn, 2005; Young et al., 1996).

At risk readers

Nine of the identified studies included participants labeled as at-risk readers and found small to large effect ($ES = 0.00-1.12$). Four of the nine studies utilized multiple instructional strategies within their intervention and found small to large effect ($ES = 0.03-0.82$) (Devine, 2010; Kuhn, 2005; Young et al., 1996; 2018), 3 utilized modeled reading within their intervention and found small to large effect ($ES = 0.46-0.75$) (Cleven, 2014; Young et al., 2015; Zimmerman et al., 2019), and 2 utilized repeated reading and immediate feedback and found medium to large effect ($ES = 0.52-1.53$) (Moyer, 2012; Van Wig, 2016).

Transitional readers

Three of the identified studies included participants labeled as transitional readers and found small to large effect ($ES = 0.03-2.06$). Two studies utilized multiple instructional strategies within their intervention and found small to large effect ($ES = 0.13-1.26$) (Ardoin et al., 2013; LeVasseur et al., 2008), and one study utilized modeled reading within their intervention however effect size could not be calculated (Keehn, 2003).

Typical readers

Four of the identified studies included participants labeled as typical readers and found small to large effect ($ES = 0.26-1.26$). Two of the studies utilized multiple instructional strategies within their intervention and found small to large effect ($ES = 0.03-0.82$) (Jefferson et al., 2017; Overstreet, 2015), two studies utilized modeled reading interventions and found small to large effect ($ES = 0.12-2.06$) (Drumheller, 2008; Ellis, 2009), and one study utilized repeated reading with immediate feedback and found large effect ($ES = 1.66$) (Farrell, 2015).

Effects across delivery agent

Recent findings from a meta-analysis indicate a significant difference in reading comprehension outcomes for students with disabilities based on the intervention's delivery agent (e.g., researcher, teacher) (Berkeley et al., 2010). To identify if similar findings are true for reading prosody related outcomes, we analyzed the differences between researcher, teacher, and researcher plus teacher implemented studies.

Researcher implemented

Eight of the identified studies consisted of researcher implemented interventions (Ardoin et al., 2013; Kuhn, 2005; LeVasseur et al., 2008; Moyer, 2012; Overstreet, 2015; Young et al., 1996; 2018; Zimmerman et al., 2019). Researcher implemented interventions yielded small to large effect sizes ($ES = 0.00-1.35$). Furthermore, the researcher implemented interventions all indicated that treatment conditions receiving two or more of the following instructional components: (a) modeling, (b) repeated reading, and (c) immediate feedback, outperformed the comparison groups.

Teacher implemented

Seven of the identified studies consisted of teacher implemented interventions (Devine, 2010; Ellis, 2009; Farrell, 2015; Jefferson et al., 2017; Keehn, 2003; Pierce, 2012; Van Wig, 2016). Teacher implemented interventions yielded small to large effect ($ES = 0.09-1.66$). Furthermore, teacher implemented interventions indicated that treatment conditions receiving repeated reading with immediate feedback or multiple instructional strategies outperformed the comparison groups.

Researcher and teacher implemented

Three of the identified studies consisted of researcher and teacher implemented interventions (Cleven, 2014; Drumheller, 2008; Young et al., 2015). These studies yielded medium to large effect ($ES = 0.46-2.06$). Furthermore, it is important to note that all three of the identified studies included interventions with only a modeled reading component.

Study quality

All 18 studies were coded and double coded by the first and second author for quality indicators using the essential and desirable quality indicators for group experimental and quasi-experimental studies suggested by Gersten et al., 2005. Overall, six studies met high quality indicators, three studies met acceptable quality indicators, and nine studies did not meet quality indicators.

Fidelity across studies

Treatment fidelity was reported for eleven of the 18 studies. Of the eleven studies that reported the procedures set in place for treatment fidelity only four reported a percentage of treatment fidelity. Three studies were researcher implemented and treatment fidelity ranged from 83–99% with an average of 92.3%. The remaining one study was teacher implemented and reported 90–100% treatment fidelity.

Inter-rater reliability

Interestingly only seven of the studies reported a percentage of inter-rater reliability of the reading prosody measure (Ardoin et al., 2013; Drumheller, 2008; Ellis, 2009; Jefferson et al., 2017; Kuhn, 2005; Overstreet, 2015; Young et al., 1996). Ardoin et al. (2013) developed their own measure called the Prosody Rating Form and reported 99% reliability. Drumheller (2008) used the Multidimensional Fluency Rubric and reported 82% reliability. Two studies used the NAEP Oral Reading Fluency Scale (Ellis, 2009; Kuhn, 2005) and both studies reported 100% reliability. Jefferson et al. (2017) utilized the Oral Fluency Scale and reported 91% reliability. Overstreet (2015) used the Multidimensional Fluency Scale and reported 83% reliability. Lastly, Young et al. (1996) used the Oral Reading Fluency Scale and reported 94% reliability. Overall average reliability across the 6 studies is 93%.

Effects of interventions for high quality and acceptable quality studies

Evaluating and identifying studies which are of high quality or acceptable quality is important when synthesizing research. It allows researchers to further strengthen their findings by identifying which practices are valid and reliable while also identify gaps in the literature (Gersten et al., 2005). We further analyze the findings specifically focusing on the nine studies which met quality indicators.

Delivery agent

Of the studies that met high quality indicators five were teacher implemented studies and had small to large effect ($ES = 0.12-0.82$), and one study was researcher implemented and had small effect ($ES = 0.03$). Of the studies that met acceptable quality indicators all were researcher implemented studies and had small to large effect ($ES = 0.00-1.35$).

Measures

When looking at the studies that met both acceptable and high-quality indicators two measures are predominantly utilized, the Multidimensional Fluency Scale (Rasinski et al., 2009) and the NAEP Oral Reading Fluency Scale (U.S. Department of Education, 2002). The Multidimensional Fluency Scale is used by 4 of the nine studies. The NAEP Oral Reading Fluency Scale was used by three studies. Of the remaining two studies that met quality indicators one utilized the Oral Fluency Rater Scale (Fountas & Pinnell, 2006) and the other utilized the Oral Reading Fluency Scale (Allington, 1983; Allington & Brown, 1979; Rasinski et al., 2009). Furthermore, all the studies which utilized the Multidimensional Fluency Scale met high quality indicators. Of the studies that utilized the NAEP Oral Reading Fluency Scale one met high quality indicators and the remaining two met acceptable quality indicators.

Overall findings

Overall findings across the 18 identified studies show that interventions which include repeated reading and one or both of the following: modeling or immediate feedback, consistently showed larger effects on reading prosody compared to interventions that included repeated reading and only instruction on a specific reading prosody component (e.g., syntax and phrasing) across participant characteristics and delivery agent.

Discussion

This systematic review summarizes findings from 18 studies which utilized treatment and comparison groups to understand the effectiveness of interventions aimed at improving reading prosody outcomes (e.g., phrasing/smoothing, syntax) of students in K-12th grade. These grades were selected because research has shown that reading prosody is important for development of reading comprehension (Dowhower, 1991; Kuhn et al., 2010; 2018; Kuhn & Stahl, 2003; Zutell et al., 2012) and due to the dearth in research related to reading prosody specifically focused on outcomes related to phrasing, smoothness, and syntax, we wanted to ensure that all available research was identified. The goal was to gain an overall understanding of the effectiveness of reading prosody instruction across participant risk, intervention instructional features, delivery agent, and study quality.

Findings from the synthesized studies indicate that a majority of study treatments utilize one or more of the following instruction methods within their intervention: repeated reading, immediate feedback, and modeling. Similar techniques have been widely used to teach fluency components related to accuracy and rate (Adams, 1990; Bryant et al., 2000; Dahl & Samuels, 1977; Samuels, 1979, National Reading Panel, 2000, Therrien, 2004). In regards to reading prosody instruction aimed to improve outcomes related to phrasing, smoothness, and syntax the findings from this study indicate interventions which include repeated reading and one or both of the following: modeling or immediate feedback, show the most considerable effects on reading prosody compared to interventions that included repeated reading and only instruction on a specific reading prosody component (e.g., syntax and phrasing) across participant risk (e.g., neurotypical, at risk reader, transitional readers).

It is important to also note that findings from this study indicate a lack in reported interrater reliability of reading prosody measures. These findings are concerning given that many reliable and valid measures have been developed and used for targeting accuracy and rate within reading. These include Curriculum-Based Measures (Pearson Education Inc., 2012) and Dynamic Indicators of Basic Early Literacy Skills (University of Oregon, Center on Teaching and Learning, 2022). Research has emphasized the importance of scores from a measure being stable, consistent, and approximately the same when administered multiple times. Findings from this study indicate a lack in reported inter-rater reliability of reading prosody measures within the identified studies. When considering reading prosody measures the most widely used include the NAEP Oral Reading Fluency Scale (National Center for Education Statistics, 2005) and the Multidimensional Fluency Scale (Zutell & Rasinski, 1991). Unlike the previously mentioned reading accuracy and rate measures, researchers utilizing reading prosody scales have consistently reported very limited inter-rater reliability data (Haskins & Aleccia, 2014). Of the studies who did not report inter-rater reliability major consistencies included, difficulty obtaining inter-rater reliability and reporting inter-rater reliability procedures without any inter-rater reliability percentage. The included studies express similar difficulties when using reading prosody scales. These similarities include reports that although researchers provided multiple trainings and practice sessions on the use of reading prosody scales, achieving strong and consistent inter-rater reliability was difficult (Fuchs et al., 2001; Klauda & Guthrie, 2008; Morrison & Wilcox, 2020).

Limitations

The findings are limited by the number of identified studies, sample size, and quality. Given the dearth of research focused on reading prosody and outcomes related to phrasing, smoothness, and syntax, dissertation studies were included in this review. Quality of included studies is a limitation given the number of studies that did not report inter-rater reliability. Furthermore, due to the dearth of research focused on reading prosody, sample size was not a part of this studies selection criteria. This decision was made to ensure that all possible studies could be identified, and a larger understanding of reading prosody instruction could be developed. These limitations were addressed by using the essential and desirable quality indicators suggested by Gersten et al., 2005.

Implications for practice

The findings from this systematic review supports the use of repeated reading, immediate feedback, and modeling to improve students reading prosody (e.g., phrasing, smoothness, and syntax). Furthermore, the addition of instruction on a specific prosody component also supports improvements in reading prosody outcomes (e.g., phrasing, smoothness, and syntax) when paired with repeated reading, immediate feedback, and modeling. These strategies are consistent with the commonly used method of explicit instruction which include modeling, feedback, and multiple opportunities for practice (Hughes, et al., 2017). Continued use of these methods will support the development of a student's overall reading fluency (e.g., accuracy, pace, prosody).

Implications for future research

This systematic review supports the need for additional research on reading prosody outcomes related to phrasing, smoothness, and syntax. Specifically, the differences in outcomes across student risk category for students in grades 9–12. Furthermore, given that the findings from this study show that most common instructional features related to reading prosody are similar to those used to teach the reading fluency components of accuracy and rate it would be beneficial to consider if there is a need for a measure that scores all components of fluency (e.g., accuracy,

rate, prosody). This is also an important consideration when thinking about the number of studies that did not report inter-rater reliability. There are two considerations to make from this: (1) develop a stronger understanding of the baselines of reading prosody at each age/grade level to allow for a better understanding of how to use already developed measure, and (2) develop a more accessible reading prosody measure. Lastly, given the importance of reading prosody for the development of various reading components it would be beneficial for future research to examine the effects and outcomes of reading comprehension based on reading prosody ability.

Acknowledgment

The opinions expressed are those of the authors and do not represent the views of the Institute or the U.S. Department of Education

Funding

This research was supported by the Institute of Education Sciences, U.S. Department of Education, through [Grant R324A160299] to the University of California Riverside.

ORCID

Aya Shhub  <http://orcid.org/0000-0003-1894-4221>

References

- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Linguistic Society of America.
- Alber-Morgan, S. R., Ramp, E. M., Anderson, L. L., & Martin, C. M. (2007). Effects of repeated readings, error correction, and performance feedback on the fluency and comprehension of middle school students with behavior problems. *The Journal of Special Education, 41*(1), 17–30. <https://doi.org/10.1177/00224669070410010201>.
- Allington, R. L. (1983). Fluency: The Neglected Reading Goal. *The Reading Teacher, 36*(6), 556–561. <https://www.jstor.org/stable/20198272>.
- Allington, R. L., & Brown, S. (1979). *Fact: A multi-media reading program*. Raintree Publishers.
- Ardoin, S. P., Morena, L. S., Binder, K. S., & Foster, T. E. (2013). Examining the impact of feedback and repeated readings on oral reading fluency: Let's not forget prosody. *School Psychology Quarterly, 28*(4), 391–404. <https://doi.org/10.1037/spq0000027>
- Benjamin, R. G., & Schwanenflugel, P. J. (2010). Text complexity and oral reading prosody in young readers. *Reading Research Quarterly, 45*(4), 388–404. <https://doi.org/10.1598/RRQ.45.4.2>
- Berkeley, S., Scruggs, T. E., & Mastropieri, M. A. (2010). Reading comprehension instruction for students with learning disabilities, 1995–2006: A meta-analysis. *Remedial and Special Education, 31*(6), 423–436. <https://doi.org/10.1177/0741932509355988>
- Bryant, D. P., Vaughn, S., Linan-Thompson, S., Ugel, N., Hamff, A., & Hougen, M. (2000). Reading outcomes for students with and without reading disabilities in general education middle-school content area classes. *Learning Disability Quarterly, 23*(4), 238–252. <https://doi.org/10.2307/1511347>
- Bryant, B. R., Shih, M., & Bryant, D. P. (2009). The gray oral reading test—Fourth edition (GORT-4). In J. A. Naglieri & S. Goldstein (Eds.), *Practitioner's guide to assessing intelligence and achievement* (pp. 417–447). John Wiley & Sons Inc.
- Busching, B. A. (1981). Readers theatre: An education for language and life. *Language Arts, 58*(3), 330–338.
- Calet, N., Gutierrez-Palma, N., & Defior, S. (2017). Effects of fluency training on reading competence in primary school children: The role of prosody. *Learning and Instruction, 52*, 59–68. <https://doi.org/10.1016/j.learninstruc.2017.04.006>
- Chomsky, C. (1976). After decoding: What? *Language Arts, 53*(3), 288–296. <https://www.jstor.org/stable/41404149>
- Cleven, J. J. (2014). *The effect of a warming up to fluency intervention on second-grade students' reading* [Doctoral dissertation]. Illinois University.
- Dahl, P. R., & Samuels, J. (1977). Teaching children to read using hypothesis/test strategies. *The Reading Teacher, 30*(6), 603–606. <https://www.jstor.org/stable/20194342>.
- Devine, P. B. A. (2010). *Explicit strategy instruction and improvements in the fluency of struggling second-grade readers* [Doctoral dissertation]. Capella University.

- Diane, M. C., Campbell, J. R., Grigg, W. S., Goodman, M. J., & Oranje, A. (2005). *Fourth-grade students reading aloud: NAEP 2002 special study of oral reading* (NCES 2006-469). Government Printing Office.
- Dowhower, S. L. (1987). Effects of repeated reading on second-grade transitional readers' fluency and comprehension. *Reading Research Quarterly*, 22(4), 389–406. <https://doi.org/10.2307/747699>
- Dowhower, S. L. (1991). Speaking of prosody: Fluency's unattended bedfellow. *Theory into Practice*, 30(3), 165–175. <https://doi.org/10.1080/00405849109543497>
- Drumheller, C. L. (2008). *The effects of a paired reading intervention on the reading fluency of second graders* [Doctoral dissertation]. Northern Illinois University.
- Ellis, W. A. (2009). *The impact of C-PEP (choral reading, partner reading, echo reading, and performance of text) on third grade fluency and comprehension development* [Doctoral dissertation]. The University of Memphis.
- Farrell, M. (2015). *Examining the effects of repeated reading on the adolescent reader's accuracy, rate, prosody, reading comprehension, and motivation to read* [Doctoral dissertation]. Northeastern University.
- Feitelson, D., Kita, B., & Goldstein, Z. (1986). Effects of listening to series stories on first graders' comprehension and use of language. *Research in the Teaching of English*, 20(4), 339–356.
- Fountas, I. C., & Pinnell, G. S. (1999). *Matching books to readers: Using leveled books in guided reading*. Heinemann.
- Fountas, I. C., & Pinnell, G. S. (2006). *Leveled books (k-8): Matching texts to readers for effective teaching*. Heinemann Educational Books.
- Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading*, 5(3), 239–256. https://doi.org/10.1207/S1532799XSSR0503_3
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children*, 71(2), 149–164. <https://doi.org/10.1177/001440290507100202>
- Hargrove, P., Anderson, A., & Jones, J. (2009). A critical review of interventions targeting prosody. *International Journal of Speech-Language Pathology*, 11(4), 298–304. <https://doi.org/10.1080/17549500902969477>
- Hargrove, T. A. (2013). *Improving reading comprehension in struggling or learning-disabled readers* [Doctoral dissertation]. Northeastern State University (Broken Arrow Campus Capstone/Thesis Collection).
- Haskins, T., & Aleccia, V. (2014). Toward a reliable measure of prosody: An investigation of rater consistency. *International Journal of Education and Social Science*, 1(5), 102–112. <http://www.ijessnet.com/uploads/volumes/1598609621.pdf>.
- Hedges, P. L. V., Olkin, I., & Hedges, L. V. (1985). *Statistical methods for meta-analysis* (I. Olkin, Ed.). Elsevier Science.
- Hoffman, J. V. (1987). Rethinking the role of oral reading in basal instruction. *The Elementary School Journal*, 87(3), 367–373. <https://doi.org/10.1086/461501>
- Hudson, R. F., Pullen, P. C., Lane, H. B., & Torgesen, J. K. (2008). The complex nature of reading fluency: A multidimensional view. *Reading & Writing Quarterly*, 25(1), 4–32. <https://doi.org/10.1080/10573560802491208>
- Hughes, C. A., Morris, J. R., Therrien, W. J., & Benson, S. K. (2017). Explicit instruction: Historical and contemporary contexts. *Learning Disabilities Research & Practice*, 32(3), 140–148. <https://doi.org/10.1111/ldrp.12142>
- Jefferson, R. E., Grant, C. E., & Sander, J. B. (2017). Effects of tier I differentiation and reading intervention on reading fluency, comprehension, and high stakes measures. *Reading Psychology*, 38(1), 97–124. <https://doi.org/10.1080/02702711.2016.1235648>
- Keehn, S. (2003). The effect of instruction and practice through readers theatre on young readers' oral reading fluency. *Reading Research and Instruction*, 42(4), 40–61. <https://doi.org/10.1080/19388070309558395>
- Kim, Y.-S G., Quinn, J. M., & Petscher, Y. (2021). Reading prosody unpacked: A longitudinal investigation of its dimensionality and relation with word reading and listening comprehension for children in primary grades. *Journal of Educational Psychology*, 113(3), 423–445. <https://doi.org/10.1037/edu0000480>
- Klauda, S. L., & Guthrie, J. T. (2008). Relationships of three components of reading fluency to reading comprehension. *Journal of Educational Psychology*, 100(2), 310–321. <https://doi.org/10.1037/0022-0663.100.2.310>
- Kuhn, M. R. (2005). A comparative study of small group fluency instruction. *Reading Psychology*, 26(2), 127–146. <https://doi.org/10.1080/02702710590930492>
- Kuhn, M. R., Rasinski, T., & Young, C. (2018). Best practices in fluency instruction. In L. Morrow & L. Gambrell (Eds.), *Best practices in literacy instruction* (pp. 271–288). Guilford Press.
- Kuhn, M. R., Schwanenflugel, P. J., Meisinger, E. B., Levy, B. A., & Rasinski, T. V. (2010). Aligning theory and assessment of reading fluency: Automaticity, prosody, and definitions of fluency. *Reading Research Quarterly*, 45(2), 230–251. <https://doi.org/10.1598/RRQ.45.2.4>
- Kuhn, M. R., & Stahl, S. A. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology*, 95(1), 3–21. <https://doi.org/10.1037/0022-0663.95.1.3>
- LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 6(2), 293–323. [https://doi.org/10.1016/0010-0285\(74\)90015-2](https://doi.org/10.1016/0010-0285(74)90015-2)

- LeVasseur, V. M., Macaruso, P., & Shankweiler, D. (2008). Promoting gains in reading fluency: A comparison of three approaches. *Reading and Writing*, 21(3), 205–230. <https://doi.org/10.1007/s11145-007-9070-1>
- Martinez, M. G., Roser, N. L., & Strecker, S. K. (1999). *Diagnostic Fluency Assessment. Unpublished assessment scale*. University of Texas.
- Maynard, B. R., Solis, M. R., Miller, V. L., & Brendel, K. E. (2017). Mindfulness-based interventions for improving cognition, academic achievement, behavior, and socioemotional functioning of primary and secondary school students. *Campbell Systematic Reviews*, 13(1), 1–144. <https://doi.org/10.4073/CSR.2017.5>
- Miller, J., & Schwanenflugel, P. J. (2008). A longitudinal study of the development of reading prosody as a dimension of oral reading fluency in early elementary school children. *Reading Research Quarterly*, 43(4), 336–354. <https://doi.org/10.1598/RRQ.43.4.2>
- Morris, R. D., Lovett, M. W., Wolf, M., Sevcik, R. A., Steinbach, K. A., Frijters, J. C., & Shapiro, M. B. (2012). Multiple-component remediation for developmental reading disabilities: IQ, socioeconomic status, and race as factors in remedial outcome. *Journal of Learning Disabilities*, 45(2), 99–127. <https://doi.org/10.1177/0022219409355472>
- Morrison, T. G., & Wilcox, B. (2020). Assessing expressive oral reading fluency. *Education Sciences*, 10(3), 59. <https://doi.org/10.3390/educsci10030059>
- Moyer, M. R. (2012). *An investigation of the influence of the theory of automaticity and the impact of repeated reading on the fluency and comprehension skills of eighth grade students with and without learning disabilities* [Doctoral dissertation], Widener University.
- National Center for Education Statistics, & MESA Group (Firm). (1995). *School district data book reference manual*. National Center for Education Statistics, US Department of Education, Office of Educational Research and Improvement.
- National Center for Education Statistics. (2005). *NAEP fact: Listening to children read aloud: Oral FLUENCY*. <http://nces.ed.gov/pubs95/web/95762.asp#tab1>.
- National Reading Panel. (2000). *NAEP: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups*. National Reading Panel (US), National Institute of Child Health, & Human Development (US). <http://nces.ed.gov/nationsreportcard/studies/ors/scale.asp>
- Overstreet, T. B. (2015). *The effect of prosody instruction on reading fluency and comprehension among third-grade students* [Doctoral dissertation]. Andrew University.
- Pearson Education, Inc. (2012). *Assessment and information. GORT oral reading test (4th ed.)*.
- Pierce, L. (2012). *Repeated readings in poetry versus prose: Fluency and enjoyment for second graders* [Doctoral dissertations]. The University of Toledo.
- Plano Clark, V., & Creswell, J. W. (2014). *Understanding research: A consumer's guide*. Pearson Education.
- Rasinski, T., Homan, S., & Biggs, M. (2009). Teaching reading fluency to struggling readers: Method, materials, and evidence. *Reading & Writing Quarterly*, 25(2–3), 192–204. <https://doi.org/10.1080/10573560802683622>
- Rasinski, T. V., Reutzel, D. R., Chard, D., & Linan-Thompson, S. (2011). *Reading fluency: Handbook of reading research* (4th ed., pp. 286–319), Guilford Press.
- Samuels, J. S. (1979). The method of repeated readings. *The Reading Teacher*, 32(4), 403–408. <https://www.jstor.org/stable/20194790>.
- Sloyer, S. (1982). *Readers theater: Story dramatization in the classroom*. National Council of Teachers of English.
- Snow, D. P., Coots, J. H., & Smith, K. (1982). *Speech prosody and children's perception of sentence organization*. National Institution of Education (ED). <https://eric.ed.gov/?id=ED222890>.
- Therrien, W. J. (2004). Fluency and comprehension gains as a result of repeated reading: A meta-analysis. *Remedial and Special Education*, 25(4), 252–261. <https://doi.org/10.1177/07419325040250040801>
- University of Oregon. (2020). *8th Edition of dynamic indicators of basic early literacy skills (DIBELS®): Administration and SCORING GUIDE*. University of Oregon. https://dibels.uoregon.edu/docs/materials/d8/dibels_8_admin_and_scoring_guide_05_2020.pdf
- University of Oregon, Center on Teaching and Learning. (2022). *DIBELS® 8th edition 2021–2022 percentiles* (Technical Report 2201).
- U.S. Department of Education. (2002). *National assessment of educational progress (NAEP) 2002 oral reading fluency study*. National Center for Education Statistics. <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006469>.
- Van Wig, A. (2016). *Reading with ease: The impact of an oral reading fluency intervention with adolescent struggling readers* [Doctoral dissertation]. University of Wyoming.
- Wolters, A. P., Kim, Y.-S G., & Szura, J. W. (2022). Is reading prosody related to reading comprehension? A meta-analysis. *Scientific Studies of Reading*, 26(1), 1–20. <https://doi.org/10.1080/10888438.2020.1850733>
- Young, A. R., Bowers, P. G., & MacKinnon, G. E. (1996). Effect of prosodic reading on listening comprehension. *Applied Psycholinguistics*, 17(1), 59–84. <https://doi.org/10.1017/S0142716400009462>

- Young, C., Pearce, D., Gomez, J., Christensen, R., Pletcher, B., & Fleming, K. (2018). Read Two Impress And The Neurological Impress Method: Effects on elementary students' reading fluency, comprehension, and attitude. *The Journal of Educational Research*, 111(6), 657–665. <https://doi.org/10.1080/00220671.2017.1393650>
- Young, C., Mohr, K. A. J., & Rasinski, T. (2015). Reading together: A successful reading fluency intervention. *Literacy Research and Instruction*, 54(1), 67–81. <https://doi.org/10.1080/19388071.2014.976678>
- Zimmerman, B. S., Rasinski, T. V., Was, C. A., Rawson, K. A., Dunlosky, J., Kruse, S. D., & Nikbakht, E. (2019). Enhancing outcomes for struggling readers: empirical analysis of the fluency development lesson. *Reading Psychology*, 40(1), 70–94. <https://doi.org/10.1080/02702711.2018.1555365>
- Zutell, J., Donelson, R., Mangelson, J., & Todt, P. (2012). Building a focus on oral reading fluency into individual instruction for struggling readers. In C. Blachowicz, T. Rasinski, & K. Lems (Eds.), *Fluency Instruction, Second Edition: Research-Based Best Practices* (pp. 310–320). Guilford Publications.
- Zutell, J., & Rasinski, T. V. (1991). Training teachers to attend to their students' oral reading fluency. *Theory into Practice*, 30(3), 211–217. <https://doi.org/10.1080/00405849109543502>