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Improving reading comprehension with readers theater

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ABSTRACT

Although readers theater has traditionally been recommended as a method for improving reading fluency, this 18-week quasi-experimental study examined the effects of a readers theater instructional protocol that updates and expands on traditional approaches by adding specific tasks that engage students in various reading comprehension and vocabulary activities. Because the students were not randomly assigned to either condition, propensity score matching was used to minimize potential bias between the groups. After the matching procedure, the overall total of second-grade students decreased from 145 to 76. A repeated-measures analysis of variance was conducted for all three measures. The results revealed statistically significant time effects on all three measures of the Gates-MacGinitie Reading Test, including decoding, word knowledge, and reading comprehension. Only the reading comprehension measure was qualified by an interaction effect, and the results favored the readers theater treatment group. Implications for instruction and future research are discussed.

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Readers theater is an instructional activity that engages students in rehearsing and performing scripts (texts) for an audience (Worthy & Prater, 2002). Readers theater is a minimalist type of performance as it requires no props, costumes, acting, or memorizing. The instructional focus in readers theater is on reading or performing a text in an expressive manner that is meaningful and satisfying to an audience. There are various forms of implementation, but most follow a weekly format for rehearsal and eventual performance (Vasinda & McLeod, 2011; Young, Stokes, & Rasinski, 2017). Although readers theater is typically classified as a reading fluency building activity (Corcoran & Davis, 2005; Martinez, Roser, & Strecker, 1998; Young & Rasinski, 2009), research suggests that it can develop additional aspects of the reading process that can lead to improvements in comprehension and overall reading achievement (Garrett & O'Connor, 2010; Griffith & Rasinski, 2004; Keehn, Harmon, & Shoho, 2008; Millin & Rinehart, 1999). Thus, a new format recently described by Young et al. targeted vocabulary and reading comprehension in addition to reading fluency in an attempt to broaden the utility of readers theater. To date, no studies involving readers theater have used a standardized measure to examine students' growth in reading ability from pre to posttest. The present 18-week study updates common readers theater models and examined its effects on students' reading comprehension as well as decoding and word knowledge (vocabulary).

Theoretical framework

Automaticity in reading

Automaticity in word recognition is typically described as accurate, effortless, and fast word identification (LaBerge &

Samuels, 1974; Samuels, 2004). Samuels claimed that “the critical test of automaticity is that the task, which at the beginning stage of learning could only be performed by itself, can now be performed along with one or more other tasks” (p. 820). In other words, once the word recognition task is automatized, readers can devote their attention to another task—in this case, reading comprehension. Perspectives on automaticity differ, however.

One perspective, based on research by Neumann (1984), could be considered the conditions for automaticity. A reader must eliminate interference, intentionality, and awareness; thus the reader unconsciously ignores multiple stimuli and minimizes intentional strategy use. Essentially, from this perspective, when readers are no longer aware of the complexity involved in word recognition processes, they are considered automatic. Their intentional awareness can then be devoted to comprehension, not to word decoding.

Another perspective on automatic word recognition might be understood as an inversion of Neumann's (1984) model. Treisman, Vieira, and Hayes (1992) believed that the conditions of automatic word reading are actually byproducts of automaticity. Instead of elimination of interference, reduction of intentionality, and unawareness being prerequisites for automaticity, they are actually side effects of becoming automatic. Thus, extended practice activities, such as the method of repeated readings (Samuels, 1979) and other practice or rehearsal-based strategies, including readers theater (Tyler & Chard, 2000; Young & Rasinski, 2018), could produce the three characteristics of an automatic reader. So then, while Neumann's list of characteristics indicated biological preparedness, Treisman et al. argued that the characteristics specified by Neumann were developed through practice.

From another perspective, the focus is placed on theoretical mechanisms. The theoretical mechanisms include identification of word parts and memory retrieval (LaBerge & Samuels, 1974; Logan, 1988; Samuels, 2004). These mechanisms are foundational for automaticity. Automatic readers decode progressively larger chunks of words (including whole words and phrases themselves), which is a memory tool the brain often utilizes. Purported in the theory of automaticity is the main belief that as readers become automatic or fluent, their cognitive resources are freed for higher-level processes, such as reading comprehension (LaBerge & Samuels, 1974; Samuels, 2004). Though, because the belief is theoretical, exactly which resources are freed and how they are reallocated have not been proven. Still, research exists that has claimed that increasing automatic word recognition is a precondition for and leads to improved comprehension (Perfetti, 1985; Stanovich, 1980; Wilfong, 2008; Young, Mohr, & Rasinski, 2015).

The reader's attention switches between decoding and comprehension, so as word decoding becomes more automatic the need to attend to or focus on decoding decreases and attention can be predominantly drawn to text comprehending (Samuels, 2004; Stanovich, 1980). Thus, activities that promote automaticity in reading, such as repeated reading and readers theater, should also lead to improved reading comprehension (LaBerge & Samuels, 1974; Logan, 1988), a notion confirmed by empirical studies (Garrett & O'Connor, 2010; Millin & Rinehart, 1999; Wilfong, 2008). Conversely, research (Lefly & Pennington, 1991; Levy, Abello, & Lysynchuk, 1997; O'Shea & Sindelar, 1983) also indicates that disfluent reading negatively affects students' reading comprehension, a relationship that further supports the connection between reading comprehension and fluency.

In relation to readers theater, theoretically, the activity is a practiced-based approach designed to help students read more automatically. According to the automaticity theory (LaBerge & Samuels, 1974), after several rehearsals, students should have additional cognitive resources that can be devoted to reading comprehension. Therefore, it is possible that readers theater could be viewed as a more comprehensive activity, rather than one that only targets reading fluency.

Research on readers theater

While readers theater has been shown to improve reading fluency (Keehn et al., 2008; Millin & Rinehart, 1999), its success is likely due to the authentic approach to repeated readings. Samuels (1979) first described how repeated reading had a positive influence on reading rate and word recognition accuracy. More recently, researchers have confirmed Samuels' claim that the method of repeated readings can have large effects on reading fluency (Lee & Yoon, 2017; Vadasy & Sanders, 2008; Vaughn, Chard, Bryant, Coleman, & Kouzekanani, 2000).

Fluent reading is closely related to reading comprehension (Reutzel & Hollingsworth, 1993). Goodman (1964) maintained that students who read with fluency were more

likely to comprehend a text than were those who did not. Decades later, after studying the manner in which first and second-grade students read, Miller and Schwanenflugel (2008) discovered that students who read with adult-like prosody or expression tended to have better comprehension by the end of Grade 3.

Another component of reading fluency is prosody. Prosody refers to the melodic elements of language found in the oral reading process. It is considered another component of reading fluency (Dowhower, 1991; Schreiber, 1980, 1991). Often referred to as expressiveness in oral reading, prosody includes modulation of tone, pitch, volume, pace, and appropriate phrasing to enhance the meaning of the text. Research has found significant correlations between measures of oral reading prosody and oral and silent reading comprehension (Rasinski, Reutzel, Chard, & Linan-Thompson, 2011). In readers theater the readers' rehearsal, and eventual performance of a script, is a vital component of the process. Delivering an expressive and meaningful oral rendering of the script requires participants to consider the overall meaning of the text and the oral expression that reflects that meaning. Therefore, it is not surprising that researchers have found that readers theater, through prosodic oriented rehearsal and performance, can impact a student's reading comprehension as well.

Martinez et al. (1998) studied second-grade students who participated in a readers theater instructional protocol and reported substantial gains in comprehension and fluency (prosody). After nine months of consistent readers theater, Garrett and O'Connor (2010) saw reading comprehension mean scores increase by 0.9 years among 45 K-5 special education students. In a 2004 study, Griffith and Rasinski (2004) reported that fourth-grade students involved in readers theater achieved two years of overall reading growth during one school year, and many of the students in the study were identified as "at risk" for reading failure. Mraz et al. (2013) described a study of third-grade students who improved dramatically in word recognition accuracy, automaticity, prosody, and comprehension after a six-week readers theater intervention. Although the aforementioned studies utilized measures of reading comprehension, none of the measures were standardized. In addition, no formats of readers theater have led to within and between group interactions in reading comprehension.

Because previous research on readers theater has established it as an effective instructional tool for increasing reading fluency (Corcoran & Davis, 2005) as well as overall reading achievement (Garrett & O'Connor, 2010; Millin & Rinehart, 1999; Vasinda & McLeod, 2011), the present study employed standardized measures of decoding, word knowledge (vocabulary), and reading comprehension. Decoding was included because of readers theater's connection to word recognition accuracy (Young & Rasinski, 2018). Moreover, the comprehension measure further examined effects on reading comprehension using a valid and reliable assessment. Finally, word knowledge (vocabulary) was a focal point of the present study because of its direct link to reading comprehension, as well as Keehn et al.'s (2008)

previous finding that students who participated in a readers theater treatment nearly doubled their vocabulary acquisition when compared with a control group. To date, no studies exist on readers theater that use standardized measures of reading comprehension to measure growth. It is important for researchers and teachers to understand the potential utility of readers theater as well as the potential limitations in relation to reading development. Therefore, we designed the present study to answer the following research question: What are the effects of readers theater on second-grade students' word decoding, word knowledge, and reading comprehension?

Method

Sample recruitment

Teachers throughout the state were offered free professional development in a recently developed readers theater format (Young et al., 2017). Based on district and teacher interest, four professional development sessions were held in various parts of the state during the summer of 2017, which were also filmed for the participating teachers' future reference. The sessions lasted three hours and concluded with an invitation to participate in the study. Potential participants were asked to dedicate 20–30 min/day to readers theater for 18 weeks. These individuals were informed that participation was voluntary, and teachers were instructed they could withdraw at any time. In addition, teachers who were not willing to implement readers theater were invited to be a part of the comparison group. Teachers in both groups were offered monetary stipends for their efforts.

By the end of the summer, 20 teachers and an estimated 700 second-grade students committed to participate. However, immediately before the start of the 2017–2018 school year, Hurricane Harvey made landfall and affected many of the schools that were willing to participate in the study. Some of the schools were in the direct path of the eye wall on the coast, and others suffered from catastrophic rainfall. Because of the devastation, 13 teachers withdrew from the study, as they lacked resources and time due to school closures for weeks into the school year.

In the end, the study involved seven participating teachers from three school districts with a total 145 second-grade students. Due to the quasi-experimental design, we used propensity score matching, which is a statistical procedure to control for potential confounding variables and better match the treatment and comparison groups before the analysis. The final analysis included 76 second-grade students.

Context and participants

The study was conducted in the fall of 2017 and lasted 18 weeks. The subjects were all from the south-central United States. Three intact Grade 2 classrooms served as the treatment group, and four intact classrooms served as the comparison group; however, not all students were included in the final analysis due to the matching process, and the

overall number of subjects was reduced from 145 to 76, creating equal numbers of well-matched students in both groups. Of the 38 students in the treatment group, 47% were males and 53% were females. In addition, 21% were identified as English language learners (ELLs), 40% were classified as at risk for reading failure, and 5% received special education services. The comparison group ($n = 38$) was comprised of 53% boys and 47% girls, 18% of the students were ELLs, 45% were at risk for reading failure, and 3% received special education services.

Monitoring the study

Teachers in the treatment group were observed for two days by Chase Young as primary researcher and the language arts curriculum director of the district. The primary researcher debriefed with the curriculum director to ensure she was prepared to observe the process for the remainder of the week. The director attended the classes during readers theater for the entire week and took detailed notes and videos of readers theater in the classroom. All of the notes and videos were shared with the researchers on an online file storage system. The curriculum director and the primary researcher were able to confirm that the teachers followed the readers theater protocol correctly. Following the week of observations, teachers were only informally observed when the curriculum director visited their classrooms. The teachers also were required to send the primary researcher videos of their readers theater performances throughout the treatment phase.

No observations were conducted in the comparison classrooms. However, the primary researcher interviewed the Grade 2 lead teacher before and after the study as well as examined their lesson plans, instructional planning guides, and school scope and sequence documents. The lead teacher confirmed that all of the Grade 2 teachers in the study followed the prescribed lessons and instructional frameworks with some variation due to teaching style and classroom characteristics. Finally, all teachers in the treatment and comparison were asked for summaries of the instruction delivered during the study.

Instruction in the comparison group

The comparison group consisted of classrooms from two different districts. In both districts, approximately 75 min were devoted to language arts. In one district, the students in the comparison group generally received instruction based on the district instructional planning guide, and adopted reading program, Reading Street, and second-grade students engaged in activities that taught concepts about print, phonological and phonemic awareness, decoding and word recognition, which included reading fluency, vocabulary and concept development, and reading comprehension. The district also used Rooted in Reading (Lemon, 2019), which offers read aloud lessons that include all of the state standards, as well as nonfiction readers that connect to the story of the week. Also, the program includes reading passages for each week to prepare students for the reading test

format. The goal is to interest the students and provide many opportunities to engage in close reading of the weekly text. The teachers also meet with small groups daily for guided intervention, in an effort to meet individual needs of readers based on their particular reading levels.

The teachers followed a district created scope and sequence for the entire year. The present study was conducted during the fall semester. During this time, there were three 20 day units: (a) communicating ideas and messages, (b) readers respond to author's purpose, and (c) preparing readers and writers for literacy works. For example, Monday of the second week of school (the first week of the study), the language arts block was allotted 75 min total. First, there was a vocabulary mini-lesson (10 min), and students chose various activities from their "Vocabulary Menu" to practice their words. These words were harvested from the text read in the basal. Next, students engaged in what the district called, "The Main Block." During this 40-min block, the teacher read aloud *Our Kind Classroom* from their curriculum, *Rooted in Reading* (Lemon, 2019). While reading aloud, the teacher required students to visualize what it is like to have a kind classroom, where students respect one another. After the reading, in groups, students reenacted from the scenes. The teacher took pictures and added photos to a class book that illustrated what kindness looks like in classrooms. Then, individually, students completed a paper where they could either write or draw themselves as unique individuals.

The next 10–15 min was devoted to spelling, and the focus was on the short E sound. Students could choose from a variety of spelling activities, such as ABC order, sentences, unscramble, or making words. While students were working on their spelling, one guided reading group was pulled, and the teacher conducted a small group reading lesson. If students working on their spelling finished early, they were asked to practice in their handwriting book or read silently. After the reading block, students engaged in 15–20 min of writing.

The daily schedule was framed similarly for the remainder of the week. Slight changes included different activities during the vocabulary time, different texts read aloud during the main block with different follow-up activities. The spelling activities also varied. When examining the 18 weeks of curriculum, the same framework was used. According to the lead Grade 2 teacher, instruction across classrooms was carried out similarly and followed the same daily framework and unit scope and sequence.

In the other district, students in the comparison group also received instruction from a locally developed curriculum. The teachers in the district stated the district offered very little for reading curriculum. Thus, the Grade 2 teachers also opted to use also use *Rooted in Reading* (Lemon, 2019). The teacher in the study mentioned that the read aloud lessons included all of the state standards as well as nonfiction readers that connected to the story of the week. Outside of whole group instruction from *Rooted in Reading*, the teacher also met with guided reading groups while students read and worked independently. A typical day in this

comparison classroom began with a whole group lesson (15 min), and was followed by guided practice (15 min). After the guided practiced, the students worked or read independently for 30 min while the teacher pulled guided reading groups.

Instruction in the treatment group

Similar to the comparison group, 75 min were dedicated to language arts instruction. Teachers reported spending between 15 and 30 min per day on readers theater, and the remaining time was dedicated to their adopted program. The treatment group also used *Rooted in Reading* (Lemon, 2019), as well as a district adopted program, *SRA Reading Laboratory* (Science Research Associates, 2018) (McGraw-Hill). *SRA* is a level program that is directed by the student. Reading levels are determined by a pretest, and as a student moves through the program, the texts becoming increasingly more complex. Students begin with reading selections, which the program calls *Power Builders*. The *Power Builder* has an appropriately leveled text complimented with comprehension questions and vocabulary activities. Students then check their own work.

Following, is an example of a typical day in the treatment group. The language arts block began with the readers theater treatment, which lasted between 15 and 30 min. The teacher then uses ideas from *Rooted in Reading* (Lemon, 2019) to conduct a read aloud, teaching reading strategies before, during, and after the reading, which takes about 15 min. Students then engage in *SRA* for remainder of the reading block (15–30 min, depending on the time spent on readers theater that day), and before writing (15 min).

Thus, in both the treatment and comparison groups, students engaged in about 60 min of reading instruction and 15 min of writing. *Rooted in Reading* seemed to be a common thread connecting all the classrooms. However, the other approaches differed. While there were likely differences between groups that could not be accounted and controlled for, readers theater treatment appeared to be a major difference between the treatment and comparison.

Readers theater treatment

Monday. The teacher introduced and read each script through a mini-lesson format, and modeled how readers generate questions while they read (National Institute of Child Health & Human Development, 2000). The secondary purpose of the read aloud was to model fluent and prosodic reading, which can aid in comprehension (Rasinski, 2010). To model question generation, the teacher would read the text aloud, and stop to do "think alouds" in which the teacher verbalized their thinking, so that students could hear a proficient reader's thought process. Teachers generated questions about characters, the plot, or questions about potentially new vocabulary words. The teachers were observed engaging the students in their thinking as well as helping students consider potential answers to the generated questions.

All of the scripts were downloaded from the primary researcher's web site (www.thebestclass.org). Teachers were not limited and were encouraged to choose any of the scripts from the site. The teacher were also instructed to choose the scripts based on their students' potential interest, not because of the reading level. Thus, the teachers only considered age appropriate content, not necessarily the complexity of the text. Teachers took this approach at the recommendation of the primary researcher during the training. Intuitively, because of the large amount of practice involved, the scripts should, indeed, be more challenging.

Afterward, students decided which scripts they liked and were grouped based on their choices. Students were offered choices to promote increased engagement (Marinak & Gambrell, 2010). The number of students were dependent on the number of parts in the group. Scripts on the site had as few as two parts, and the maximum number of parts was 26. Multiple scripts were used each week and were changed weekly. Thus, groups also changed, but every student participated each week. Once the students obtained a copy of the script, they reread it for overall meaning and also circled any unknown words, which were discussed on Tuesday.

Tuesday. The students gathered in their readers theater groups and chorally read the entire script. The choral reading provided a context for students to become familiar with the text as a whole group. Then, the students collectively created a summary of their script. Within the groups, students discussed the unknown words they had circled on Monday. Research by Santoro, Chard, Howard, and Baker (2008) revealed that discussions about vocabulary increased the discussants' word knowledge. Though the discussions were typically brief, at least one of the students in the group was usually able to define the unknown words. However, if no one knew, the teacher usually helped. On some occasions, the students looked up the words online. After finding the definitions through discussion or by seeking help from the teacher or online dictionary, students wrote the definitions on the script.

Wednesday. Students in each group worked together to choose parts and engage in their first rehearsal. Students chose their parts based on interest, but sometimes there were arguments when making choices. The researcher recommended "rock, paper, scissors" as a means for deciding when more than one student wanted a particular part. Once the parts were selected, and while the students rehearsed for the first time, the teacher visited each group and coached the students, often helping with word recognition and confusing aspects of the text. It is important for students to comprehend the text to read their parts aloud with the appropriate expression (Cecil, 2017); therefore, the teacher also guided a high-level discussion regarding the group's script to ensure the students understood the deeper meaning of the text (Lin, 2015). Finally, while groups rehearse, students are asked to put a box around interesting words and discuss them after the rehearsals.

Thursday. Thursday was referred to as a "dress rehearsal," despite the fact that there were no costumes or props. However, with four days of repeated reading,

students understood that it was the last day to practice before the performance. The groups stood in various places in the room and practiced as if they were performing for an audience. They focused on reading expressively, accurately, and at an appropriate pace. After the final rehearsal, the students retold their scripts to a student in a different readers theater group.

Friday. This was the day of the Grand Performance. The prospect of the performance is what turned repeated readings into rehearsals, which added authenticity to the weekly activity (Young & Nageldinger, 2014). After teaching the audience the definitions of previously unknown words, each group performed their script for classmates, parents, or visitors. After the performances, students discussed what they liked best about the script and how they would change it or add to it to make it even better (Table 1). The time required on this day varied based on the length of each script, but according to the teachers and video recordings, performance time typically ranged from 20 to 30 min.

Instrumentation and analysis

This study employed Gates-MacGintie Reading Test (4th ed.; GMRT-4) (MacGinitie, MacGinitie, Maria, & Dreyer, 2002) for second-grade students. This standardized reading test is administered in a whole group setting and measures students' decoding skills, word knowledge (vocabulary), and reading comprehension. The GMRT-4 tests student's decoding by presenting a picture and asking the student to fill in the bubble next to the correct word that matches the picture. All of the answer choices look similar. In the example there is a picture of a pig, and the choices are *big*, *fig*, *pig*, and *dig*. In another example, there is a picture of a girl running, and the choices are *run*, *rug*, *rub*, and *hut*. Thus, the student is likely to recognize the picture, but has to carefully decode each word and select the correct answer. In contrast, the vocabulary section has pictures which may not be easily labeled by the students, and the answer choices are not phonetically similar. In the example, there is a picture of a winding road going through the landscape, and the answer choices are *bus*, *truck*, *city*, and *road*. Finally, comprehension is tested somewhat differently. Students are presented with a sentence or short paragraph and are required to choose the bubble next to the appropriate corresponding picture—there are three picture choices. In the example, the sentence says, "Dan's bus was coming." The possible answers are a picture of a bus pulling up, a picture of a bus driving away, and a car pulling up. Thus, the student would have bubbled in the picture of a bus pulling up because it matches the meaning of the text.

Students were pretested with form S and posttested with form T. The correlations between the two forms are strong on all three measures, including word decoding ($r = .86$), word knowledge ($r = .86$), and reading comprehension ($r = .82$). The overall scores between the forms are also strongly correlated ($r = .90$). When examining the internal consistency of each form, the Kuder-Richardson formula 20 (KR-20) and the corresponding norms suggest that the

Table 1. Readers theater plus reading comprehension and word study format.

Day	Building fluency with gradual release	Comprehension	Word study
Monday	Teacher models texts to be performed on Friday. Students follow along and discuss the quality of the teacher's reading.	As a whole group, generate questions while reading each script aloud. Students choose their scripts, do a quick read though while completing the word study.	Circle unknown words to be discussed in small group on Tuesday.
Tuesday	Choral reading of script.	Students choose their scripts, and the teacher helps students generate a summary of their respective scripts.	Discuss unknown words in readers theater group and write down definitions on the bottom or back of the script.
Wednesday	Small group rehearsal. Teacher coaches.	Students assign parts and rehearse in their assigned groups. Teacher goes from one group to another coaching and giving encouragement and talking about meaning of the script.	Put a box around interesting words while rehearsing and discuss them after the rehearsal.
Thursday	Practice—dress rehearsal	Class does a run through of the scripts and texts to be performed. Afterwards, students retell the script in their own words to a partner from a different group.	
Friday	Grand performance. Students perform for an authentic and supportive audience of classmates, parents, and other visitors.	After the performance, students discuss what they liked most about their script and what could have been done to make the script even better.	Before the performance share definitions of previously unknown and interesting words.

Table 2. Timeline of the study.

Date	Action
Week 1	Administer Gates-MacGinitie Reading Tests (4th ed.; Form S)
Weeks 2–17	Implement Readers Theater + Comprehension and Vocabulary Format
Week 18	Administer Gates-MacGinitie Reading Tests (4th ed.; Form T)

GMRT-4 has high reliability for all measures: word decoding (KR-20 = .95), word knowledge (KR-20 = .93), and reading comprehension (KR-20 = .92). The overall reliability is also considered high (KR-20 = .97; MacGinitie et al., 2002).

The study began the first week of school and concluded the last week of the fall semester, which totaled 18 weeks. The first and final weeks were dedicated to testing, and therefore the treatment phase lasted a total of 16 weeks (Table 2).

Data analysis

The anonymous data were uploaded by the teachers via an encrypted submission form. Teachers were asked to provide their gender, years of experience, and a narrative about their typical daily instruction. Once the data were obtained, a repeated-measures analysis of variance was employed to detect main and interaction effects on all three measures. Before the analysis, the researchers used propensity score matching to strengthen the quasi-experimental design (Rosenbaum & Rubin, 1983).

Because students were not randomly assigned to the theater intervention, propensity score matching was used to minimize potential bias between the groups. Ideally, this would be done at the selection level (teacher), but an adequate number of teachers were not obtained, and thus the procedure was conducted at the student level.

Propensity score matching is a technique that uses covariate data to estimate the likelihood of group assignment and then matches participants with similar propensity for treatment (Rosenbaum & Rubin, 1983). Propensity scores in this

Table 3. Summary of balance for unmatched and matched groups.

	Unmatched (n = 145)			Matched (n = 76)		
	Treated <i>M</i>	Control <i>M</i>	<i>d</i>	Treated <i>M</i>	Control <i>M</i>	<i>d</i>
Teacher Experience	11.18	7.46	0.62*	9.60	9.26	0.05
Gender	0.47	0.47	0.00	0.52	0.47	0.10
ELL	0.81	0.87	-0.16	0.78	0.8158	-0.06
At-Risk	0.48	0.70	-0.43*	0.60	0.5526	0.10
SPED	0.96	0.90	0.28*	0.94	0.9737	-0.13
Pretest	57.02	71.61	-0.54*	64.34	69.6316	-0.19

Note. ELL = English language learner; SPED = special education.

**d* > .20.

study were estimated using logistic regression and included the following covariate information: (a) the teacher's years of experience, (b) gender, (c) whether the student was an ELL, (d) at-risk status for reading failure, (e) special education status, and (f) the GMRT-4 total pretest score. Following propensity score estimation, students were matched one-to-one without replacement using a distance caliper of 0.15 standard deviations of the logit transformation of the propensity score. All analyses were conducted using the Matchit program in R (Ho, Imai, King, & Stuart, 2007) and balance was assessed using guidance in the literature (Lane, To, Shelley, & Henson, 2012). The standardized mean difference between the groups on propensity scores and covariates should not exceed 0.2 (Caliendo & Kopeinig, 2008; Rubin, 2001). As shown in Table 3, the unmatched design had several measures with effects sizes that were too large, including teacher experience, at-risk status, students receiving special education, and the GMRT-4 overall pretest scores. However, after matching, all of the variables standardized mean differences were below 0.2, indicating that the groups were better balanced.

Results

The quasi-experimental study examined the effects of readers theater plus comprehension and vocabulary on students'

Table 4. Means and standard deviations.

Measure	Condition	Pretest		Posttest		Gain	<i>n</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Decoding	Treatment	23.79	10.78	30.45	9.89	6.60	38
	Control	24.13	9.39	30.71	9.44	6.58	38
Word Knowledge	Treatment	20.82	8.79	26.34	13.26	5.52	38
	Control	22.34	8.49	25.92	9.23	3.58	38
Comprehension	Treatment	19.74	10.05	28.37	6.90	8.63	38
	Control	23.16	8.00	26.50	7.28	3.34	38

Table 5. Homogeneity tests for all measures.

Measure	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
Pretest decoding	0.13	1	74	.72
Posttest decoding	0.01	1	74	.91
Pretest word knowledge	0.004	1	74	.95
Posttest word knowledge	1.76	1	74	.19
Pretest comprehension	2.97	1	74	.09
Posttest comprehension	0.001	1	74	.98

decoding, word knowledge, and reading comprehension scores. The subjects were pre- and posttested using the GMRT-4 for second-grade students. The pre- and posttest means and standard deviations for decoding, word knowledge, and reading comprehension are summarized in Table 4.

Levene's *F* was insignificant on all pretest and posttest measures (Table 5); therefore, the groups were assumed to have equal variances. There were no statistically significant differences between the two groups on the basis of the pretest measures. In addition, because three districts were included in the study, an analysis of variance between the districts was conducted for all three pretest measures. No statistically significant differences were found for decoding, $F(2, 74) = 0.77, p = .47$; word knowledge, $F(2, 74) = 2.36, p = .10$; or reading comprehension, $F(2, 74) = 1.34, p = .27$.

A 2 Treatment \times 2 Time repeated-measures analysis of variance was used to examine all three outcome measures (Table 6). The analysis revealed statistically significant time effects on students' decoding scores. These time effects were not qualified by an interaction effect. Essentially, there was an effect of time but no evidence of an effect of the intervention on gains in students' decoding scores. The graph of estimated marginal means reveals that both groups' decoding scores increased similarly throughout the study (Figure 1).

There were statistically significant time effects on students' word knowledge. These time effects were not qualified by an interaction effect. Similar to the decoding measure, time had an effect on students' word knowledge, and not necessarily the intervention. As can be seen in the graph of estimated marginal means (Figure 2), the treatment group's word knowledge increased more rapidly than the comparison, but there was no statistically significant difference between groups. The treatment group pretest scores were slightly lower at the onset and surpassed the comparison group during the intervention phase.

Finally, there were statistically significant time effects on students' reading comprehension scores. These time effects were qualified by an interaction between the treatment and time. As can be seen in the graph of the estimated marginal

Table 6. Repeated-measures analysis of variance summary table for Gates-MacGinitie Reading Test subtests.

Measure	Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η_p^2
Decoding	Time	1664.53	1	1664.53	62.18	<.001	.46
	Time \times Group	.06	1	0.06	0.002	.96	.00
	Error (Time)	1980.91	74	26.77			
	Group	3.480	1	3.480	.021	.886	.000
Word knowledge	Error	12492.961	74	168.824			
	Time	787.61	1	787.61	20.62	<.001	.22
	Time \times Group	36.03	1	36.03	0.94	.34	.01
	Error (Time)	2826.37	74	38.19			
Comprehension	Group	11.605	1	11.605	0.070	.793	.001
	Error	12353.211	74	166.935			
	Time	1362.01	1	1362.01	55.15	<.001	.43
	Time \times Group	265.80	1	265.80	10.76	<.01	.13
	Error (Time)	1980.91	74	26.77			
	Group	22.901	1	22.901	0.212	.647	.003
	Error	8001.066	74	108.123			

means (Figure 3), the treatment group's pretest means were lower, increased more rapidly, and eventually outperformed the comparison on the posttest. This indicated that students in the treatment group benefited from time spent in the intervention on the reading comprehension measure. To further examine the nature of the effects on the reading comprehension measure, we conducted a post hoc analysis of the mean difference effect sizes and found a large effect ($d = 1.08$) in the treatment group and a moderate effect ($d = 0.57$) in the comparison.

Discussion

The present study investigated the effects of readers theater, an instructional method often used for improving reading fluency, on students' word decoding, word knowledge (vocabulary), and comprehension. Results indicate that students receiving the readers theater treatment made significant gains in all three measures of reading over the course of the study and made significantly greater gains in reading comprehension when compared with a matched group of students receiving a more traditional reading curriculum.

The readers theater treatment had a large positive effect on students' reading comprehension. The time spent engaging and analyzing one text could be equated to a close reading protocol (Fisher & Frey, 2012). Daily activities were centered around the scripts the students had selected and required each group to think deeply about various aspects of the text. In addition to the repeated close readings, students also had an authentic purpose, which was the performance. The preparation process required students to consider the author's intended meaning, and convey the message with prosody that reflected the meaning of text; thus students needed a complete and deep understanding of the script. This connection between prosody and comprehension has been confirmed in previous research (Goodman, 1964; Miller & Schwanenflugel, 2008). These mental processes, such as thinking implicitly and explicitly about textual meaning, likely then transferred to other reading events, including the posttest.

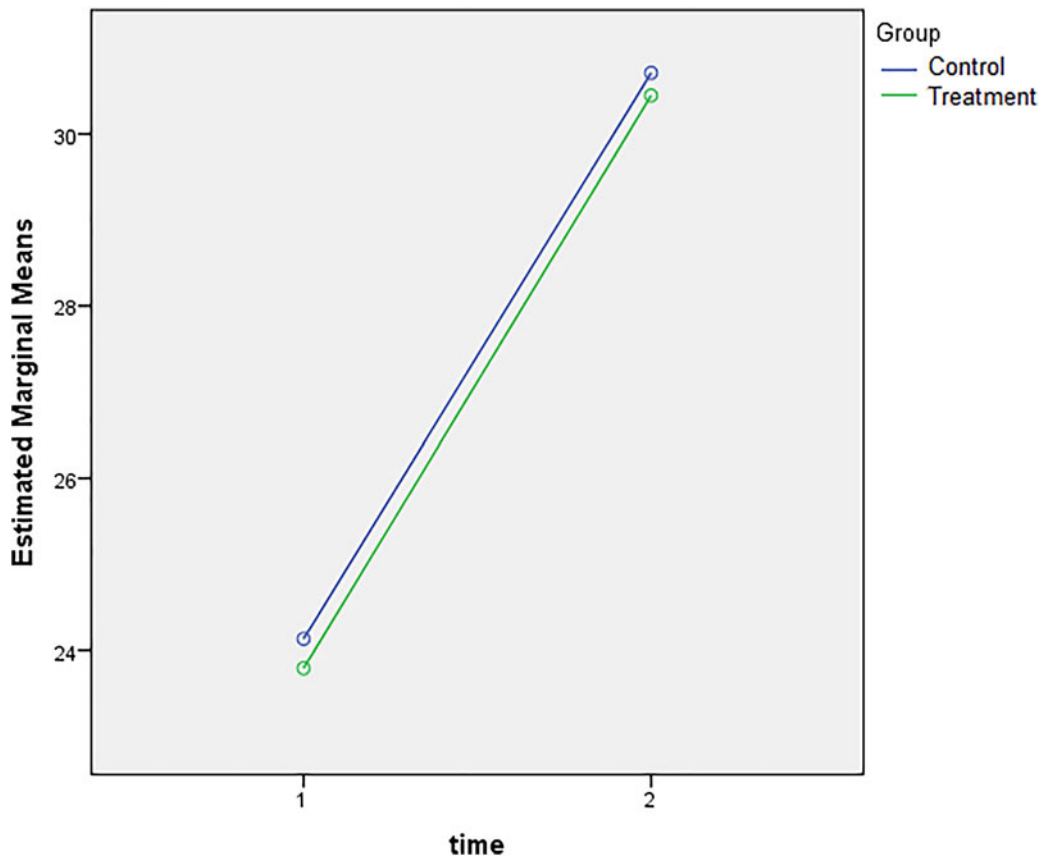


Figure 1. Graph of estimated marginal means for decoding.

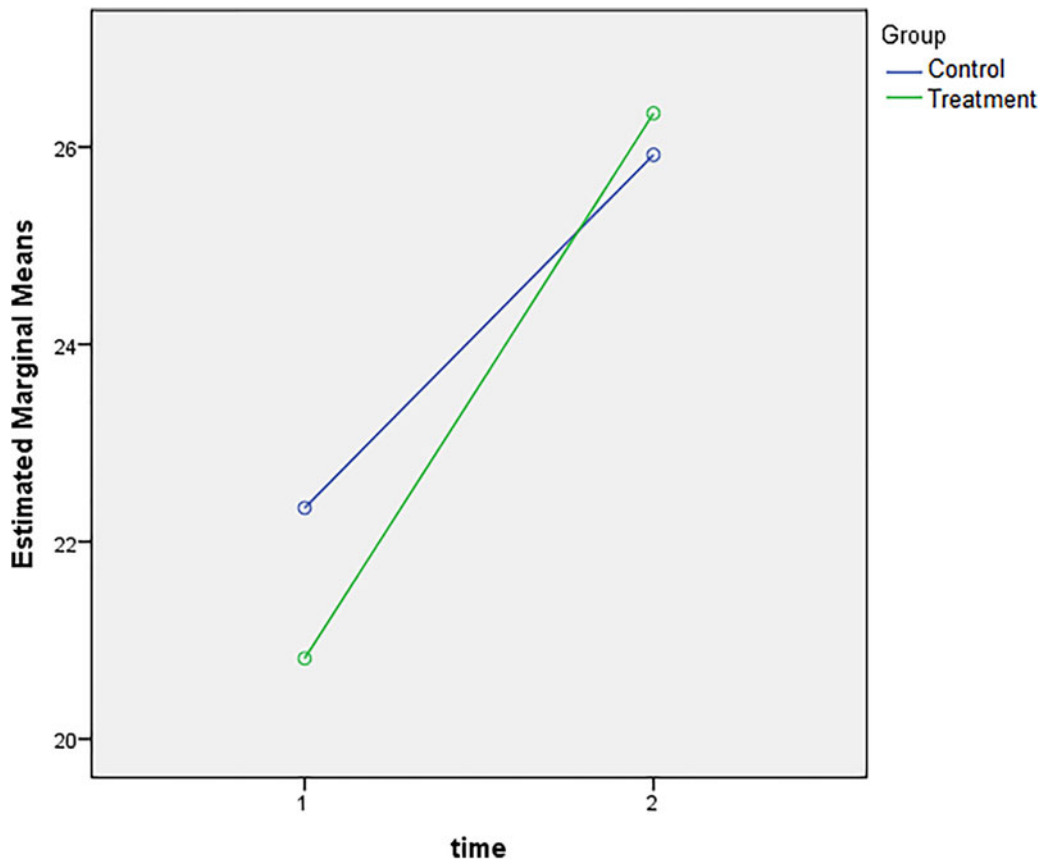


Figure 2. Graph of estimated marginal means for word knowledge.

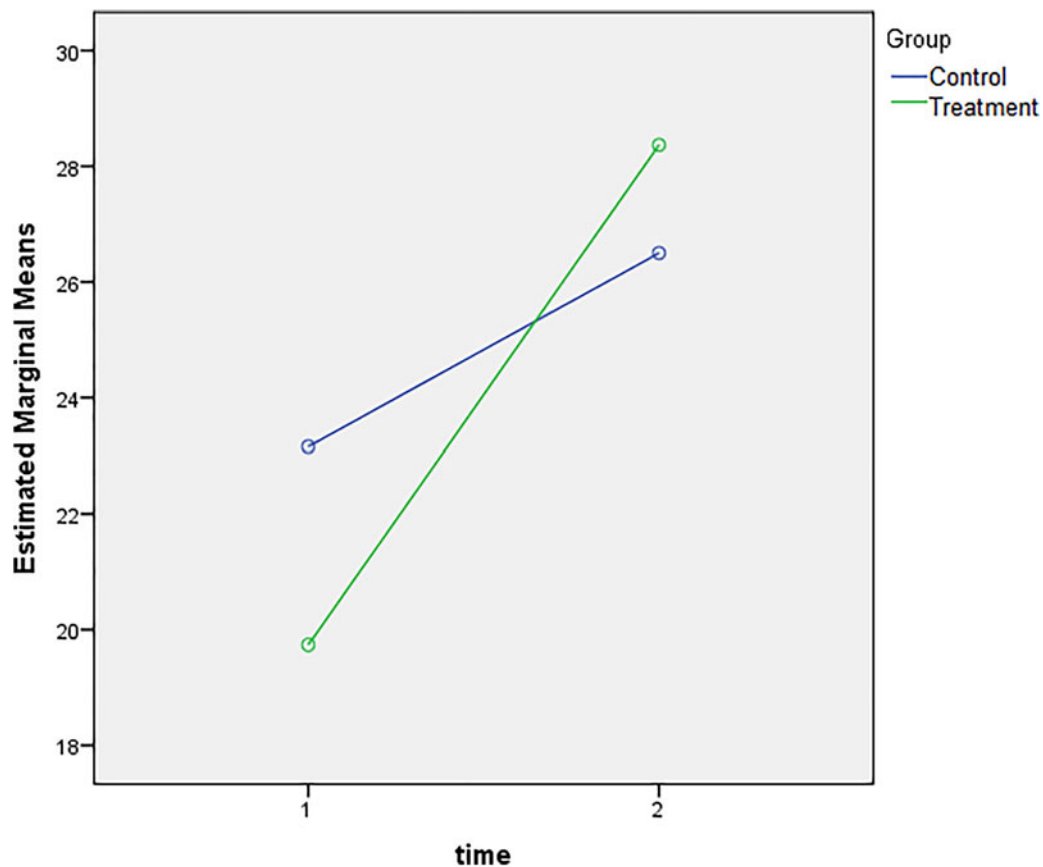


Figure 3. Graph of estimated marginal means for reading comprehension.

Students in both groups made significant gains in word knowledge (vocabulary). Simply focusing students' attention to noticing words, whether new or interesting, is said to be an effective strategy for boosting vocabulary (Rasinski, Padak, Newton, & Newton, 2008, Rasinski et al., 2008). In the treatment, students were encouraged to think about unknown and interesting words, and discuss them. The resulting discussions have also been deemed an effective means for increasing word knowledge (Santoro et al., 2008). Therefore, the added focus on words in context, and the discussions about the unknown, difficult, or interesting words could have influenced how the students in the treatment began to think about words while reading in other situations. Students who are interested in words tend to learn more of them (Rasinski et al., 2008). Still, the programmatic approach followed in the comparison group also increased students word knowledge.

Another contributing factor for the similarly positive results of the word study vocabulary component may be found in the humorous type of scripts offered to the students. As Aria and Tracey (2003) found, when humor was embedded within vocabulary instruction, readers out-performed those of traditional instruction. These results also confirmed another study on readers theater that resulted in nearly double the vocabulary acquisition of eighth-grade students in a readers theater treatment (Keehn et al., 2008).

The third measure, word decoding, grew almost synchronously with the comparison group. Although it is uncertain, one might infer that the readers theater treatment

develops decoding similarly to more traditional programs. It is not taught the same, but the gains were almost identical. In readers theater, students engage in repeated readings through rehearsals, and during the rehearsals develop accurate word reading for the purpose of performance. The words are in context of the script, and students are coached by their peers and the teacher to read the text automatically or with ease. Students are taught not only to recognize the words, but also to recognize them quickly and read at an appropriate pace. However, it is also possible that the decoding instruction delivered outside of the time dedicated to readers theater also impacted their growth; therefore, further research is needed in this area.

Implications

The significant results from this study suggest that teachers could consider consistently implementing readers theater in their classrooms. Admittedly, it may be difficult for teachers to find time during the school days with various mandates, and thus school and district administrators should review the research and make adjustments to include this effective and engaging activity. Not only does it develop fluent reading, but it increases other integral aspects of reading. *School Library Journal* stated that readers theater might be the closest thing to a "silver bullet" to address the Common Core Standards.

In addition to language arts, readers theater can be used in the content areas, and the comprehension and vocabulary

activities could help students learn concepts in various subjects. All the while, the students are engaging in a close repeating reading of nonfiction text. Although the present study demonstrated that readers theater impacts comprehension and word knowledge, no empirical research exists as to whether content area concepts are internalized through the process; therefore, there is a need for further research in this area. In regards to further research, there is also a need for rigorous examinations of the effects of readers theater at differing grade levels.

While readers theater is well known by most teachers, it is often employed as an add-on to the reading curriculum—something fun to engage in when the “real” work of reading instruction is done. Through this present study, as well as previous research, we argue that readers theater could (and should) have a place as an integral part of any effective reading curriculum. Not only does readers theater have a positive impact on various aspects of reading, it is also widely viewed as an enjoyable and authentic reading activity for students and teachers. As two students mentioned in an earlier study on readers theater, “Readers theater is the funnest reading I ever did before,” and “I never thought I could be a star, but I was the BEST reader today” (Martinez et al., 1998, p. 326).

Limitations

Quasi-experimental studies have several limitations. First, the design lacks random assignment, which is problematic. However, in an effort to reduce the bias, we used propensity score matching to help balance the groups. This procedure, in itself, is a limitation in that the researchers decide which covariates may be of influence. For this particular study, a major limitation was the self-selected groups serving in the treatment and comparison. Ideally, because the participants were actually selected at the teacher level, the matching should have occurred at the same level. Unfortunately, multilevel modeling would be underpowered due to the sample size. Still, the researchers decided that any attempt to eliminate potential bias, albeit at the student level, would strengthen the study.

Additionally, lack of consistent fidelity of implementation measures were a limitation in this study. Teachers were observed for one week and did send subsequent videos of the various activities in the readers theater format, but the researchers were unable to observe the teachers throughout the 18 weeks. However, at the conclusion of the study, teachers described their classroom contexts in detail and confirmed that they had followed the readers theater protocol for the duration of the study.

Because students self-selected the scripts and their parts, the amount of reading varied weekly between students. In addition, the researchers did not control for text level. However, readers theater research often urges teachers to primarily consider scripts based on interest rather than text level (Young & Rasinski, 2009), a concept promoted by some reading researchers who believe that there are consequences associated with a hyper focus on reading levels (Hoffman, 2017). Moreover, even though students may have chosen texts above

their present reading level, the regular rehearsal of such texts allowed students to master them. In a study of repeated readings, Stahl and Heubach (2005) reported that students made the greatest progress when the texts they read repeatedly were above their assigned reading levels.

Finally, one might assume that measures of reading fluency (i.e., reading rate and prosody) would have been measured during the study. The researchers believed, however, that substantial research exists on variations of repeated readings, including readers theater, that consistently reports increases in reading fluency. Although reading fluency measures, such as reading rate, could have served as covariates, the researchers were cognizant of the time demands on teachers, and opted not to require further testing, especially because in the present study we sought to examine readers theater’s effect on other aspects of the reading process.

Conclusions

The results of the present study expand the understanding of the potential for readers theater to improve reading achievement in the elementary grades—in this case, Grade 2. Extensive research reports that readers theater can increase reading fluency and reading ability according to informal reading inventories. The present study provides compelling evidence that consistent implementation of readers theater with a focus on reading comprehension and vocabulary, can improve students’ decoding skills and word knowledge (vocabulary) similar to business as usual classrooms that utilize adopted programs. However, in this case, participation in the readers theater treatment resulted in greater gains on the reading comprehension measure, and thus this study provides further evidence that readers theater is a viable option for inclusion into elementary reading curricula.

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