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Author(s): Hautala, Jarkko; Ronimus, Miia; Junttila, Enni

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Readers' Theater Projects for Special Education: A Randomized Controlled Study

Jarkko Hautala, Miia Ronimus & Enni Junttila

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Readers' Theater Projects for Special Education: A Randomized Controlled Study

Jarkko Hautala [a], Miia Ronimus [a] and Enni Junttila [a,b]

[a]Niilo Mäki Institute, Jyväskylä, Finland; [b]The Open University of the University of Jyväskylä, Jyväskylä, Finland

ABSTRACT

A randomized controlled trial was conducted to study the effectiveness of two readers' theater (RT) programs in promoting reading skills and motivation of dysfluent readers in Grades 3–4. One program (RT Goal) included a goal of preparing a performance for an audience ($n = 50$), while another program (RT Practice) did not include such a goal ($n = 49$). A group of dysfluent readers receiving traditional oral reading intervention (Control group; $n = 59$) and a group of classroom peers (Mainstream group; $n = 159$) served as controls. The results indicate that both RT groups and the Control group developed at a higher rate in oral reading speed during the intervention period than the Mainstream group. The RT Goal program was associated with higher engagement ratings and a temporary reduction in reading errors and oral reading anxiety. RT had no effects on silent reading skills or reading self-efficacy.

Readers' theater (RT) is a drama-based pedagogical approach to practicing reading with hand-held scripts, which are read aloud to an audience (Rinehart, 2001). RT emphasizes expression and prosody while providing a meaningful context for repeated oral reading, which is known to be an effective way to improve reading fluency (Therrien, 2004). Previous research on RT has mostly focused on daily intensive classroom-level programs spanning from a few weeks to several months. Each week, the teacher first models the reading of the script; then, the students practice reading the text alone or in a group in preparation for a performance at the end of the week. Performing is seen as central to RT (Rinehart, 2001), but no previous studies have tested whether preparing a play for performance increases the effectiveness or motivational appeal of RT.

Today's drama education takes a child-centered and progressive approach (Bolton, 2007), placing children's interests, feelings, and experiences at the center of the learning process (see Tang et al., 2017). The strong emphasis on generating a warm and accepting atmosphere is expected to promote playful self-expression, role-taking, and the use of imagination. This is particularly important when applying RT in special education because many poor readers express anxiety toward oral reading (Novita, 2016). By engaging in playful acting exercises with texts familiarized through repeated readings, poor readers have the opportunity to improve their reading fluency and confidence in reading with expression (Rinehart, 2001). However, no previous studies have focused on RT in a special education context in which students practice RT once or twice a week with other poor readers.

Previous Readers' Theater Research

The following review of the previous RT studies focuses on elementary school students and the near-transfer effects (e.g., improved trained skills, such as reading speed) and far-transfer effects (e.g., improved untrained skills, such as reading comprehension) of RT (see Manset-Williamson & Nelson, 2005; Therrien, 2004). Several studies on intensive RT have reported equal gains in oral reading rate and accuracy and in reading comprehension relative to control groups receiving a comparable amount of traditional oral practice (Black, 2016; Jagger, 2008; Marshall, 2017; Smith, 2011). In addition, some other studies without strong control groups have reported RT having a significant effect on near-transfer measures of oral reading accuracy (Millin & Rinehart, 1999) as well as fluency and expression (Keehn, 2003). The gains in reading rate ranged in these studies from 6 to 30 words per minute (wpm). Keehn (2003) found that low-ability readers improved more than high-ability readers in oral reading rate (+29 wpm), retelling, and expressiveness. In two studies, Young and Rasinski (2009, 2018) implemented an intensive 15-minute a day RT program over one school year and compared its benefits to typical education, which was supplemented by an additional 15-minute independent reading routine in the 2018 study. In both studies, RT improved oral reading rate (by 60 wpm) and prosody. The control group in the 2018 study developed by 30 wpm from pre to posttest (the 2009 study had no control group). Finally, Young et al. (2019, 2020) demonstrated that RT could be adapted to support the development of reading comprehension and vocabulary beyond what is achieved with typical high-quality reading instruction, including oral reading exercises.

Thus, while previous studies provide consistent evidence of RT's benefits, especially for oral reading skills, more research is needed to determine if less intensive RT programs (e.g., one to three weekly sessions; see Trainin & Andrzejczak, 2006) are also effective, if poor readers also benefit from RT, how different components of RT programs contribute to its effectiveness, and whether there are far-transfer and long-term benefits of RT.

The Motivational Aspects of Readers' Theater

Previous studies have reported no motivational benefits in RT groups compared to control groups (Marshall, 2017; Smith, 2011). However, considering RT's child-centered and playful approach to reading practice, it could have more motivational and emotional benefits than traditional classroom-based reading instruction.

First, RT may promote positive academic emotions, which are defined as domain-specific emotions triggered by different school subjects (Pekrun, 2006). Academic emotions are equally determined by trait and state factors (Nett et al., 2017) and can be supported by interventions addressing skills and emotion regulation (Kim & Hodges, 2012). Three emotions—enjoyment, boredom, and anxiety—are considered central to academic achievement (Lichtenfeld et al., 2012). It is possible that positive emotions experienced during RT increase students' enjoyment of reading and decrease reading-related boredom and anxiety.

Second possible benefit of RT is improved self-efficacy, which refers to personal beliefs about one's capability to perform the actions needed for a successful outcome (Bandura, 1997). High self-efficacy is associated with higher effort and perseverance (Bandura, 1997) and achievement (see, for example, the meta-analysis by Talsma et al., 2018). Systematic inclusion and acknowledgment of the sources of self-efficacy (i.e., mastery experience, vicarious experience, verbal persuasion, and affective responses; Usher & Pajares, 2008) in reading fluency interventions seems to support the self-efficacy of poor readers (Aro et al., 2018). In RT, students may experience mastery when they read the same script repeatedly and become more fluent in it. Vicarious experiences occur when children see peers with similar difficulties succeed at reading scripts and performing roles. Verbal persuasion refers to positive feedback and encouragement by adult instructors which are

an inherent component of the program. In addition, affective responses are accepted in RT, and they are discussed in small groups.

Finally, RT may also increase student engagement (i.e., active involvement) in learning activities. Engagement is affected by situational factors and is associated with achievement gains (Fredricks et al., 2004; Wigfield et al., 2008). Behavioral engagement refers to persistence, effort, concentration, and attention during the learning activity, whereas emotional engagement refers to emotions that facilitate performance, such as enthusiasm, interest, and curiosity, and the absence of negative emotions, such as anxiety or frustration (Reeve, 2012).

The motivational appeal of RT could be increased by cooperative goals, which are known to support learning and motivation (Kleingeld et al., 2011; Roseth et al., 2008). Having the specific goal of preparing a play for an audience could improve student cooperation and commitment to the activities of the program, which could improve engagement during the program.

Present Study

Previous studies have demonstrated the efficiency of intensive RT in promoting oral reading skills. The present study extends previous research by investigating the effect of less intensive RT as a practically feasible alternative to traditional special education lessons. Of special interest is whether the goal of preparing and performing a play for an audience increases the beneficial effect of RT on near- and far-transfer reading skills and student motivation. To study the immediate and long-term effects (see Wolff, 2016), student participants underwent pretest, posttest, and follow-up assessments. The study explored the following research questions:

(1) Is RT more effective at improving oral reading skills (near transfer) than typical special education in reading and mainstream reading instruction? Can the positive effects be generalized to reading skills (silent reading fluency, reading comprehension) not explicitly trained in RT (far transfer)?
(2) Does RT improve students' reading-related self-efficacy, academic emotions, or engagement?
(3) Does including a goal (preparing a play for an audience) increase the benefits (either related to motivation or skill improvement) of an RT program?

Methods

Before conducting the main study, measures and intervention programs were piloted at a school (see Supplement A).

Recruitment

After receiving an approval from the Ethical Committee of the University of Jyväskylä, research permissions were obtained from participating municipalities. To fill in the study groups, only large schools (which were more likely to have a sufficient number of poor readers in Grades 3 and 4) were considered. The pilot school was excluded from the main study. Ten schools agreed to participate. Headmasters discussed the study with the classroom and special education teachers and returned signed consent forms to the researchers. Teachers delivered information letters, consent forms, and questionnaires to the parents of students who needed targeted support for their reading skills, as well as to the parents of randomly selected students with typical reading skills.

Participants and Study Groups

The 318 students who volunteered to participate and provided parental consent participated in a screening test for oral reading fluency (RF) in November 2019. In *Word List Reading* (Lukilasse

2, Häyrinen et al., 2013) *Test*, the students were required to read a list of words of increasing difficulty. The test was scored based on the number of words read correctly in 2 min. In the *Text Reading Test* (e.g., First Steps, Kiuru et al., 2015), the students were asked to read a short text of 124 words. The test was scored based on the number of words read correctly in one minute. The mean of the standard scores of the two tests was used as a summative measure of RF. Students scoring below −0.84 (i.e., the 20th percentile) were classified as poor readers ($n = 146$).

Students with low RF scores were randomly assigned to one of three groups: 1) the RT Goal group, which focused on preparing students for a reading performance; 2) the RT Practice group, which conducted the same program without the goal of a performance; and 3) the Control group, which received traditional oral reading interventions. The remaining participants were assigned to the Mainstream group, which only participated in the pre-, post-, and follow-up measurements. Whenever there was an insufficient number of poor readers in a school to fill the intervention groups, students ($n = 18$) with the lowest reading accuracy (preferably RF below −0.5) were added. Three students in RT or Control groups ceased participation at an early stage and were replaced by two students from the Mainstream group. See Table 1 and Supplement B for more information.

Intervention Programs

Teacher Training

University students with a minimum of 25 credits in drama education were recruited as research assistants to administer the training and the assessments at the schools. The research assistants participated in a thorough training consisting of an introduction to RT and to the intervention programs, demonstrations of RT exercises, an overview of the responsibilities of a research assistant, and training in confidentiality practices, documenting each training session, and administering the research assessments. Through the process, continuous support from the research team was available.

RT Programs

Table 2 provides an overview of the program lesson structure. The program focused on practicing a single play script (1000 words/8 acts) entitled "Velhokisat" [Wizard Contest] written for the research project by drama teachers. The reading exercises in the program were designed around this script. Each session consisted of a greeting circle, reading exercises, and ending routines. A drama contract (Neelands, 1984) was introduced during the first session to ensure a safe learning environment for everyone. A drama contract explains the type of drama work to be completed and the basic principles of group work (e.g., everyone is allowed to participate in their own way, all participation is voluntary, and the self is separated from the acting role and thereby protected during role-play) (Heyward, 2010).

The RT Goal program consisted of eight preplanned and documented 1.5 h sessions held once a week, during which the play was rehearsed and finally performed for an audience of classmates. The

Table 1. Composition of the study groups.

	RT Goal	RT Practice	Control	Mainstream	Total	$\chi^2(3)$
N	50	49	59	159	317	
Selection criteria (primary/secondary)	45/5	41/8	52/7		138/20	
Gender (girls/boys)	28/22	31/18	32/27	90/69	181/136	1.00
Grade (3/4)	20/30	26/23	27/32	61/98	134/183	3.73

Note. Out of the 146 students who originally fulfilled the primary selection criteria, four students were moved to Mainstream group, three students ceased participation in RT, and one moved from the region after pretest. Two students moved from Mainstream group to intervention groups are included in the number of students fulfilling the secondary selection criteria (see Supplement B for more information).

Table 2. Overview of the readers' theater programs.

# Lesson	RT Practice	RT Goal
1	Introduction to RT, goals of the training, drama contract, and establishment of a safe learning environment for the group.	
	Getting to know the script and drama exercises. The teacher reads the whole script aloud to the students, who follow along with the text.	
2	Reading aloud scenes 1–4, discussion, reading aloud scenes 5–8, discussion.	
3–4	Concentrating on one character of the play at a time. Students collaborate to search for this character's lines. Echo reading the character's lines led by a student. The teacher or a student reads a short introduction of each character. The students mime and/or act out according to what they hear in the story.	
Halfway 5–7	Deeper analysis of the content of the scenes, reading the scenes in different ways, and changing roles. During Lesson 7, character introduction readings rehearsed.	During Lesson 5, students given roles and rehearse playing their roles. Lesson 6 focuses on practicing scenes 1–4, and Lesson 7 on scenes 5–8.
8	Dress rehearsal and reading of character introductions to an audience.	Dress rehearsal and performance of the play for an audience.

Note. RT = Readers' theatre.

groups followed the same lesson structure until the halfway point (see Table 2). The main difference between the RT Practice and RT Goal programs was the preparation process for the final performance, which started earlier and was more intensive for the RT Goal group. The RT Practice students practiced the play without the goal of performing it for an audience; instead, they had the opportunity to briefly introduce the characters to an audience. In this way, both groups had a chance to perform on stage.

Control Condition

The students in the Control group received school-based reading support, including possible special education lessons in reading. In addition, to improve the comparability between groups in the amount of oral reading, classes and special needs teachers were asked to provide these students with an additional 10-minute practice session in oral RF twice a week. To encourage this activity, the researchers provided the teachers with age-appropriate print reading materials.

Intervention Measures

Engagement in RT and Reading Lessons

The RT intervention groups filled out a 13-item engagement questionnaire at the end of Lessons 3 and 7. The items were loosely based on the items used by Pöysä et al. (2018), who investigated variation in Grade 7 students' behavioral/cognitive engagement, emotional engagement, and disaffection during a school week. The present study included subscales of emotional engagement (three items, $\alpha = .89$, in T1), disaffection (three items, $\alpha = .80$), and behavioral engagement (four items, $\alpha = .76$). In addition, three items assessing students' anxiety during the RT program were included ($\alpha = .59$).

Students in all groups (excluding the Mainstream group) filled out a short questionnaire about their engagement in their school's reading lessons twice during the intervention. The questionnaire consisted of subscales of emotional engagement (three items, $\alpha = .83$) and behavioral engagement (three items, $\alpha = .72$). These items were similar to the items of the RT questionnaire but referred to reading during lessons. The items of both questionnaires were answered on a five-point scale (1 = not at all true, 5 = very true). The mean score of each subscale was used in the analyses. In the case of the RT groups, these items were included on the same sheet as the RT engagement items. The Control group filled out their questionnaires the same week as the RT groups.

Fidelity Control

Classroom teachers reported the type and amount of reading support each student received during each week of the intervention. One RT session for each small group was recorded for observational

analysis of treatment fidelity. On a scale from 1 to 5, an observer rated how successful the session was in terms of the reading training (i.e., if students were able to focus on and properly engage with the reading assignments).

Pretest, Posttest, and Follow-up Assessments

Pretests were conducted in December 2019, posttests from mid-March to mid-May, 2020, and follow-up measurements from October to November 2020.

Procedure

Computer-based tests were used to assess reading skills and motivation. Students worked on laptops wearing headphones during a 45-minute session supervised by research assistants. Instructions for the tasks were given both as text and concurrent spoken audio on the computer. The tasks began with practice trials. In addition, students' oral reading skills were assessed individually by a research assistant. See Supplement B for special arrangements caused by the Covid-19 pandemic.

Computerized Sentence Verification

In this RF task, students read a sentence as quickly as possible and determined whether it was true or false (e.g., Mansikat ovat keltaisia [Strawberries are yellow]) by clicking a large green "yes" or red "no" button below the sentence. The number of correct responses (maximum = 70) given within a 2-minute period was used as the outcome score. In a previous study (Hautala, Heikkilä, et al., 2020), the test–retest correlation of this test was high ($r = .89$), the mean factor loading for fluency factor was 0.75, and parallel test reliability was high (Cronbach $\alpha = .95$). The present study used parallel tests ($\alpha = .92$) with different sentences at each measurement point. Sentences were presented in random order.

Computerized Reading Comprehension

In the present cloze text comprehension task, students were asked to read seven five-sentence texts. Each text was shown on a single screen with four words missing. Each word gap had four options for completion: a suitable word (1 p), two slightly poorer alternatives (0 p), and one clearly ill-fitting alternative (0 p). The task was designed to require inference making and text integration skills. The percentage of correct word choices was used as an outcome score in the analysis. The stability across measurement points was $\alpha = .88$, and internal reliabilities of .63, .71, and .77 were found for T1, T2, and T3, respectively.

Oral Reading

In this test, the students were first asked to read a text silently and to answer a multiple-choice question about the text (to ensure they had read the text). Then, the students were asked to read the same story aloud with expression "to make it sound interesting." The text included five lines with clearly cued opportunities for vivid expression. Different texts (152–154 words and 1199–1215 characters) were used at each time point. Reading speed (wpm) and sum of errors and self-corrections were analyzed. Expressiveness was evaluated according to a rubric adapted from Zutell and Rasinski (1991), consisting of four subscales: phrasing, smoothness, pace, and expression, which were rated on a five-point scale. The mean of the subscale ratings was used in the analysis. The interrater reliability values were $\alpha = .93$–$.96$ at pretest between three raters, and $\alpha = .88$–$.93$ at posttest between two raters who also rated the follow-up measurements (therefore, interrater reliability was not evaluated at follow-up).

Motivation

After the skill assessment, students completed a questionnaire about reading-related emotions and motivation. Mean scores of the items of each subscale were used in the analyses. Reading-related

emotions were assessed using a 12-item scale adapted from Lichtenfeld et al. (2012) with subscales for enjoyment (pretest α = .86), boredom (α = .79), anxiety related to reading aloud (α = .74), and anxiety related to reading in general (α = .64). Each subscale included three items that were answered on a 5-point scale (1 = not true at all, 5 = very true).

Reading-related self-efficacy was assessed with subscales of RF (four items, α = .74), reading comprehension (four items, α = .75), reading development (three items, α = .81), expressive reading (three items, α = .81), and performing for an audience (three items, α = .84). Again, a 5-point scale was used (1 = totally certain I can't, 5 = totally certain I can). The questionnaire was adapted from Aro et al. (2018).

Statistical Analyses

In all analyses, an alpha level of 0.05 was used for statistical inference. Background information was analyzed using a one-way analysis of variance with Bonferroni corrections for multiple comparisons or by testing frequency distributions. The data across time points was analyzed with repeated measures analysis, including factors of time (1, 2, 3), group (RT Goal, RT Practice, Control, Mainstream), and Time x Group interaction.

The analysis was conducted with generalized linear mixed modeling (glmer) using SPSS 27, which has previously been found to provide unbiased estimates for treatment effects in RCT designs with heterogeneous groups, missing data, and several measurement points (Bell & Rabe, 2020). Random effects were intercepts for participants and schools, except in the case of engagement analysis, where only intercept for participants could be included for obtaining model convergence. Normal distribution with identity link function was applied, except for oral reading errors, for which Gamma distribution with logarithmic link was used. These selections fulfilled the model assumptions of normally distributed residuals (skewness $\leq |1.10|$ and kurtosis $\leq |2.50|$ in all analyses).

To further reduce the effects of influential cases, robust estimation with Satterthwaite approximation of significance levels was used. Effect size estimates (Cohen's f) were calculated using the statistical test result value and degrees of freedom (Ben-Shachar et al., 2020). There was a substantial amount of data attrition (see Supplement C) that was distributed evenly across the study groups.

Significant interactions were elaborated with planned contrasts of fixed effects coefficients between the groups for both time steps. Least significant difference-adjusted results of pairwise comparisons were also provided for significant main effects.

Results

Background Information

Table 3 provides background information about the study groups. The Mainstream group had a higher parental education level than the Control group and a higher RF than all the other groups. There were no differences between the study groups in the ratio of boys to girls or third- to fourth-grade students. Most importantly, due to their reading aloud mini-lessons and higher number of special education lessons, the Control group received a comparable number of reading instruction sessions to the RT groups during the intervention period.

Fidelity analysis of the RT lessons showed that lesson times ranged from 55[1] to 91 min (M = 73 min, SD = 10 min), with active engagement in reading exercises ranging from 14 to 43 min (M = 25.7 min, SD = 7.7 min). The quality ratings of the reading instruction ranged from 2 to 5 (M = 3.8, SD = 0.9). The reading exercise time and quality ratings did not correlate with reading gains from T1 to T2 ($|r|$s $\leq .273$, ps $\geq .152$).

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[1]Due to the exceptional scheduling of lessons, the RT program was implemented in 10 60-minute sessions in one school.

Table 3. Background information of the study groups.

Measures	RT Goal M (SD)	RT Practice M (SD)	Control M (SD)	Mainstream M (SD)	Total M (SD)	df	F
Age (years)	10.02 (0.64)	9.89 (0.62)	9.98 (0.55)	10.01 (0.66)	9.99 (0.63)	3, 315	0.67
Reading fluency (Z)	−1.41 (0.68)	−1.56 (0.73)	−1.60 (0.70)	0.16[a] (0.69)	−0.69 (1.09)	3, 317	156**
Parental education (1–7)	4.86 (1.16)	4.84 (1.16)	4.60 (1.26)	5.28[b] (1.13)	5.02 (1.19)	3, 314	5.81**
Lessons:							
Reading sum (per week)	5.87 (1.98)	5.92 (2.02)	6.09 (1.36)			2, 148	0.203
Literacy (per week)	4.28 (0.80)	4.12 (0.91)	4.58 (0.60)				
Special educ. (per week)	0.34 (0.62)	0.45 (0.82)	0.83 (1.05)				

Note. ** $p < .001$. Each 45-minute period was counted as one reading lesson (i.e., 1 RT session = 2 lessons, 2 mini-lessons = 1 lesson). On average, the Control group received 1.35 mini-lessons in a week (SD = 0.93).
[a]Significantly different from all the other groups.
[b]Significantly different from the Control group.

GLMER Analyses

The significant results relevant to the research questions are provided in Tables 4–6. Major findings are illustrated in Figures 1–3. See Supplement C for details concerning data attrition, group means, and fixed effect results for measures not showing significant interactions, and Supplement D for intercorrelations between the measures.

Reading Skills

Oral Reading Speed
The effects of time, group, and Time x Group interactions were highly significant (Table 4). Planned contrasts showed that relative to the Mainstream group, all intervention groups showed more improvement in their reading speed from T1 to T2. The Control group made more progress than the RT Goal group. From T2 to T3, the Mainstream group improved more than the RT Goal and Control groups (Figure 1a). Concerning the main effects, pairwise comparisons indicated that reading speed improved both from T1 to T2 and from T2 to T3 with the Mainstream group showing faster reading speed than the other groups.

Oral Reading Accuracy
The effects of time, group, and Time x Group interactions were significant (Table 4). Planned contrasts showed that from T1 to T2, the RT Goal group reduced their reading errors more than the other groups. However, from T2 to T3, the reading errors increased in the RT Goal group relative to the Control and RT Practice groups (Figure 1b). Concerning the main effects, pairwise comparisons
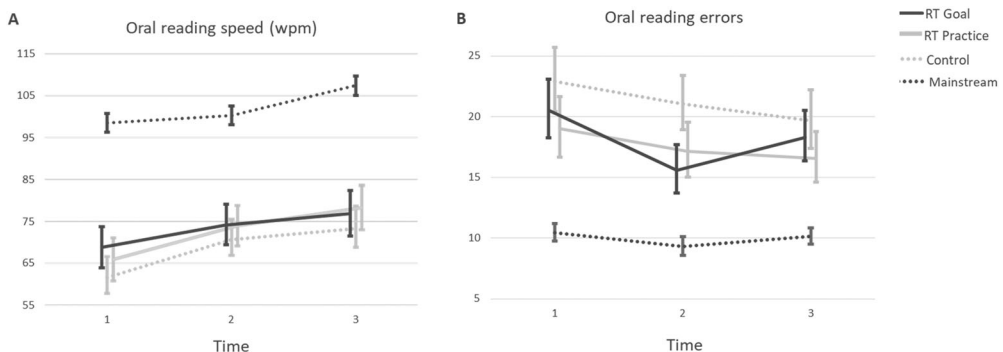

Figure 1. Estimated marginal means of (a) oral reading speed and (b) errors.
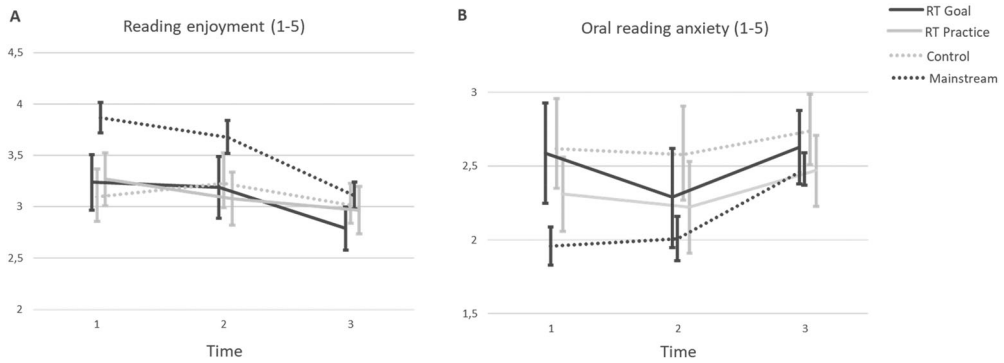
Figure 2. Estimated marginal means of (a) reading enjoyment and (b) oral reading anxiety
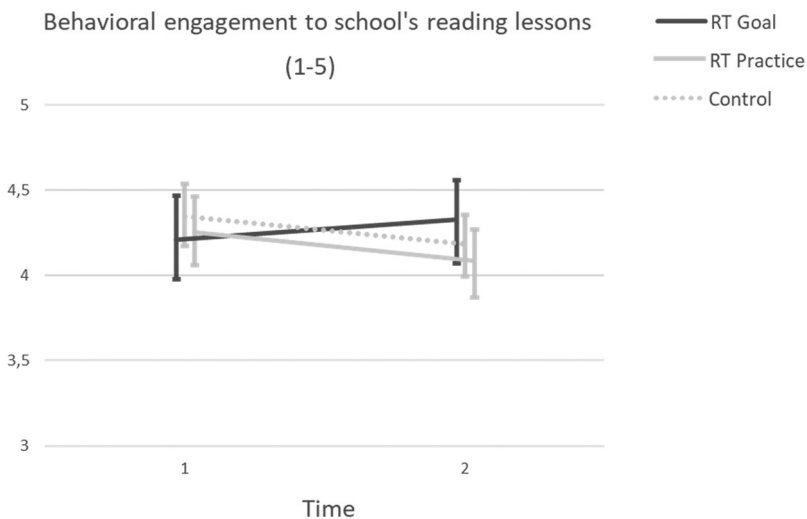
Figure 3. Estimated marginal means of student engagement in reading instruction.

showed that reading errors reduced from T1 to T2, with the Control group making more errors, and the Mainstream group fewer errors than the other groups.

Other Reading Skill Measures

There were no significant Time x Group interactions in the near-transfer measure of expressive reading scale or in the far-transfer measures of sentence verification and cloze reading comprehension.

Motivational Measures

In the subscale of reading enjoyment, there were significant effects of time, group, and Time x Group interactions (Table 5). Planned contrasts showed that this was due to a reduction in reading enjoyment in the Mainstream group: from T1 to T2, reading enjoyment decreased more in the Mainstream group than in the Control group, and from T2 to T3, reading enjoyment in the Mainstream group decreased more than in the Control and RT Practice groups. (Figure 2a). Concerning the main effects, pairwise comparisons showed that reading enjoyment was higher in the Mainstream group and that there was a reduction in reading enjoyment from T2 to T3.

Table 4. Results of GLMER analyses of oral reading skills.

	Speed (AIC = 6739)				Errors (AIC = 939)			
Effect	df	F	p	es	df	F	p	es
Time	2, 296	153.72[a]	<.001	1.019	2, 396	17.71[c]	<.001	0.310
Group	3, 167	115.49[b]	<.001	1.440	3, 289	77.34[d]	<.001	0.896
Time × Group	6, 271	7.75	<.001	0.414	6, 355	3.043	.006	0.227
Planned contrast	b	SE	t	p	b	SE	t	p
From T1 to T2								
RT Goal vs. Mainstream	3.631	1.272	2.855	**.005**	0.161	0.067	2.399	**.017**
RT Practice vs. Mainstream	6.271	1.365	4.596	**<.001**	−0.012	0.072	−0.169	.866
Control vs. Mainstream	7.226	1.354	5.338	**<.001**	−0.029	0.062	−0.474	.636
RT Goal vs. Control	3.595	1.585	2.267	**.024**	0.190	0.072	2.655	**.008**
RT Practice vs. Control	0.955	1.661	0.575	.566	0.017	0.076	0.224	.823
RT Goal vs. Practice	2.64	1.59	1.655	.099	−0.173	0.081	−2.15	**.032**
From T2 to T3								
RT Goal vs. Mainstream	4.364	1.451	3.001	**.003**	−0.075	0.070	−1.060	.290
RT Practice vs. Mainstream	2.767	1.554	1.781	.076	0.120	0.070	1.706	.089
Control vs. Mainstream	4.453	1.440	3.092	**.002**	0.154	0.059	2.607	**.010**
RT Goal vs. Control	0.089	1.701	0.52	.958	0.229	0.073	3.118	**.002**
RT Practice vs. Control	1.690	1.791	0.942	.348	−0.034	0.073	−0.463	.643
RT Goal vs. Practice	−1.598	1.800	−0.889	.375	−0.195	0.083	−2.35	**.019**

[a]T1 < T2 < T3.
[b]Mainstream > Other groups.
[c]T1 > T2 & T3.
[d]Control > Other groups, Mainstream < Other groups.

Table 5. Results of GLMER analyses of motivational measures.

	Reading enjoyment (AIC = 2105)				Oral reading anxiety (AIC = 2235)			
Effect	df	F	p	es	df	F	p	es
Time	2, 270	30.29[a]	<.001	0.474	2, 246	10.63[c]	<.001	0.294
Group	3, 210	8.822[b]	<.001	0.355	3, 298	6.94[d]	<.001	0.264
Time × Group	6, 278	5.663	<.001	0.350	6, 261	2.50	.023	0.240
Planned contrast	b	SE	t	p	b	SE	t	p
From T1 to T2								
RT Goal vs. Mainstream	−0.143	0.147	−0.975	.331	0.352	0.161	2.187	**.029**
RT Practice vs. Mainstream	−0.008	0.136	−0.062	.950	0.133	0.183	0.727	.468
Control vs. Mainstream	−0.322	0.139	−2.313	**.021**	0.089	0.176	0.506	.614
RT Goal vs. Control	0.179	0.184	0.977	.330	0.263	0.221	1.193	.234
RT Practice vs. Control	0.314	0.175	1.789	.075	0.044	0.237	0.184	.854
RT Goal vs. Practice	0.134	0.181	0.742	.459	0.220	0.226	0.972	.332
From T2 to T3								
RT Goal vs. Mainstream	−0.161	0.146	−1.11	.272	0.131	0.161	0.815	.417
RT Practice vs. Mainstream	−0.452	0.134	−3.382	**<.001**	0.219	0.164	1.34	1.81
Control vs. Mainstream	−0.349	0.128	−2.723	**.007**	0.305	0.178	1.709	.090
RT Goal vs. Control	0.187	0.168	1.114	.268	0.173	0.219	0.790	.431
RT Practice vs. Control	−0.104	0.158	−0.658	.511	−0.085	0.221	−0.386	.700
RT Goal vs. Practice	0.291	0.173	1.69	.094	−0.088	0.208	−0.424	.672

[a]T1 & T2 < T3.
[b]Mainstream > Other groups.
[c]T1 & T2 < T3.
[d]Control > RT Practice, Mainstream < Control & RT Goal.

In the subscale of anxiety for reading aloud, there were significant effects of time, group, and Time x Group interactions (Table 5). Planned contrasts showed that this was due to a reduction in anxiety in the RT Goal group relative to the Mainstream group from T1 to T2. All the groups showed a similar increase in oral reading anxiety from T2 to T3. See Figure 2b for the pattern of effects. Concerning the main effects, pairwise comparisons showed that oral reading anxiety was lower in the Mainstream than the Control and RT Goal groups and higher in the Control than the RT Practice group. Oral reading anxiety also increased from T2 to T3.

Table 6. Results of GLMER analyses of engagement measures.

Effect	School, beh. (AIC = 509)				RT, emot. (AIC = 447)				RT, dis. (AIC = 481)				RT, beh. (AIC = 360)			
	df	F	p	es	df	F	p	es	df	F	p	es	df	F	p	es
Time	1, 120	2.094	.150	0.131	1, 37	0.000	.983	0	1, 58	0.011	.916	0.014	1, 57	1.696	.198	0.170
Group	2, 107	1.123	.329	0.145	1, 46	7.082	.011	0.365	1, 79	8.644	.004	0.314	1, 74	7.285	.009	0.299
Time × Group	2, 121	3.889	.023	0.254	1, 37	0.424	.519	0.106	1, 58	0.290	.592	0.071	1, 57	1.901	.173	0.180

Note: School = School's reading lessons, RT = Reader's theater, beh = behavioral, emot = emotional, dis = disaffection.

There were no significant Time x Group interactions in other motivation subscales (reading boredom, reading anxiety, or self-efficacy subscales).

Engagement

There was a significant Time Group interaction concerning behavioral engagement in the reading lessons (Table 6). Planned contrasts indicated that engagement improved more in the RT Goal group (Figure 3) than in the Control group ($b = -0.282$, $SE = 0.114$, $t = 2.465$, $p = .15$) and RT Practice group ($b = .288$, $SE = 0.118$, $t = 2.437$, $p = .16$). There were no differences in emotional engagement in the schools' reading instruction ($M = 3.49$, $SE = 0.072$) between the intervention groups.

Engagement in RT was high. There was a significant main effect of group on the disaffection, emotional, and behavioral engagement scales. Planned contrasts showed that emotional engagement was higher ($b = 0.583$, $SE = 0.229$, $t = 2.55$, $p = .017$) in the RT Goal group ($M = 4.33$, $SE = 0.141$) than in the RT Practice group ($M = 3.80$, $SE = 0.166$). Disaffection ($b = -0.607$, $SE = 0.24$, $t = -2.54$, $p = .014$) was lower in the RT Goal group ($M = 1.628$, $SE = 0.111$) than in the RT Practice group ($M = 2.169$, $SE = 0.147$), and behavioral engagement ($b = 0.470$, $SE = .177$, $t = 2.63$, $p = .010$) was higher in the RT Goal group ($M = 4.442$, $SE = 0.076$) than in the RT Practice group ($M = 4.091$, $SE = 0.106$). There were no significant differences between groups regarding anxiety toward RT ($M = 1.834$, $SE = 0.065$). The effect of the measurement point was not significant in any of the subscales.

Discussion

The present study reports a randomized controlled trial on the effectiveness of two RT programs (eight 90-minute weekly small group sessions) tailored for poor readers in Grades 3 and 4.

Regarding our first research question, RT appeared to be equally effective as traditional support in improving oral reading speed but more effective than mainstream classroom instruction. This result is in line with previous research, including studies on intensive RT programs of comparable duration (Black, 2016; Jagger, 2008; Marshall, 2017; Millin & Rinehart, 1999; Smith, 2011). However, during the follow-up period, the intervention groups developed at a slower rate than the Mainstream group. This result is also in line with previous reading intervention research, which typically documents maintenance of acquired benefit during the follow-up period (see Wolff, 2016). Clearly, continued practice of reading aloud is required for maintaining a high development rate in oral reading speed among poor readers.

RT programs did not produce additional improvements in expressive reading. Expressive reading skill was higher in the Mainstream group, in line with previous knowledge of RF being the main determinant of reading prosody (Schwanenflugel et al., 2004). Previously, modest improvements in expressive reading have been obtained when RT has been implemented over a school year and when substantial improvements in oral reading speed have been achieved (Young & Rasinski, 2009, 2018). Thus, it seems that a sufficient level of RF and accuracy are prerequisites for learning expressive reading skills (Rasinski, 2004). As suggested by Rinehart (2001), RT programs should focus on expression only after students have learned to read text aloud with adequate fluency and confidence. Finally, the current interventions did not result in additional improvements in the far-transfer measures of silent sentence RF and reading comprehension, which is in line with previous findings suggesting that RT needs to be tailored to achieve benefits in skills other than oral reading (Young et al., 2019, 2020).

Concerning the second research question, the only general effect of the interventions on motivational variables was found in reading enjoyment. The RT groups and the Control group maintained their level of reading enjoyment during the follow-up period, whereas there was a reduction in the Mainstream group. Children's reading motivation is known to deteriorate during elementary grades (e.g., Lepper et al., 2005). The decrease in the Mainstream group could be indicative of this phenomenon, whereas the provided reading support may have prevented or delayed this decrease in the intervention groups.

Regarding our third research question, from pretest to posttest, the RT Goal group showed less development in the near-transfer measure of oral reading speed compared to the Control group but a larger decrease in reading errors relative to the other groups during the intervention. The lack of parallel improvement in the expressive reading scale again suggests that reading quality develops first in accuracy rather than expression. In addition, the goal of performing temporarily decreased anxiety toward oral reading. In other words, the students had more courage and a greater ability to read aloud in public. This finding is of special importance because poor readers generally experience more anxiety, particularly toward oral reading (Novita, 2016). It is possible that role-play and role protection helped the children feel positive about their performances (Heyward, 2010); this should be researched further. The increase in reading errors and oral reading anxiety at follow-up indicates that continued practice is required to maintain positive development.

The results of the engagement measures suggest that the RT Goal group was more emotionally and behaviorally engaged in RT during the intervention, suggesting that preparation for a performance is an important aspect of RT (Rinehart, 2001) and that this is also the case for poor readers. This is consistent with previous RT studies that have reported qualitative observations of struggling readers' eagerness to perform (Millin & Rinehart, 1999; Mraz et al., 2013). The RT Goal program also increased students' behavioral engagement in reading instruction. This is in line with previous research suggesting that authentic student projects increase school engagement (Newmann et al., 1992). Based on the present findings, RT has the potential to increase school engagement in general, but this should be addressed by future studies.

Finally, the lack of benefits in self-efficacy seems to suggest that self-efficacy requires more explicit support than what was provided by the RT programs (see Aro et al., 2018; Kim & Hodges, 2012). Also, it should be noted that several of the small groups were unable to give their final performance due to the Covid-19 pandemic and therefore did not get the mastery experience of performing the practiced play. This may have limited the effects of RT on self-efficacy, particularly those related to self-efficacy in performing for an audience.

Restrictions and Limitations

Several factors not addressed in the present study may influence the effectiveness of RT. First, previous studies have shown that strong effects of up to 30 wpm in 8–10 weeks can be obtained with intensive RT, including daily sessions and oral reading programs (e.g., Keehn, 2003; Marshall, 2017; Trainin & Andrzejczak, 2006; Young & Rasinski, 2018). In the present study (one 90-minute session a week), the intervention groups developed their oral reading rate by 5–9 wpm from pre to posttest. However, these numbers are not directly comparable because Finnish words are on average 1.5 times longer than English words (Liversedge et al., 2016).

It is also possible that better results would have been obtained if individual factors, such as students' collaborative skills, were considered when forming the groups and if the teachers had been more experienced or familiar with the students. In addition, the national shift to distant learning due to the Covid-19 pandemic caused RT programs to end prematurely at some schools. This and a delay of a few weeks before the posttests could be administered may have caused a general attenuation of the intervention effects. The pandemic year 2020 may also have generally affected students' learning and motivation, although it is still difficult to say if these effects are temporary or lasting.

Practical Implications

The present results have shown that a once-a-week RT program is equally effective as traditional reading aloud practice in promoting the oral RF of poor readers in a special education context. Yet, previous studies suggest that even higher gains may be obtained if RT is implemented in

multiple weekly sessions or supplemented with additional oral reading sessions in classrooms or homes, possibly utilizing the same RT script.

The present study has shown that with proper preparation and supportive pedagogy, poor readers can successfully perform for an audience. Facing this challenge seems to be significant enough to support engagement and at least temporarily reduce anxiety related to reading aloud in public. To maintain this positive development, poor readers could benefit from regular opportunities for RT-like performance in supportive contexts, where one's lines are carefully practiced and the self is protected by a role.

The present study is one of the few to demonstrate the promise of student projects in a special education context (Johnson et al., 1997). Authentic goals may support the motivation to practice basic scholastic skills (e.g., oral reading), which could otherwise be dull or laborious for many readers. With the same logic, similar goal-driven student projects could be designed around other scholastic skill training. For example, RT has been successfully applied to foreign language learning (Tsou, 2011).

A worrisome finding was that the gap between intervention and Mainstream groups' reading speed only shrunk during the intervention period, not during the follow-up, suggesting that the standard educational methods may not provide adequate support for poor readers' oral reading skills in Finnish schools. Juntunen (2019) found that expressive reading is not explicitly taught in Grades 3–6, according to teacher reports. She concludes that teaching oral reading skills with diverse methods, such as by using drama, should be embraced in Finnish primary education.

Conclusion

RT is an effective and engaging method of promoting oral RF and the confidence of poor readers in a special education context. The goal of performing seems to be a central motivating factor in RT. However, depending on the frequency of the RT sessions, additional oral reading practice may be needed. Also, continued support is required to maintain confidence in oral reading.

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ORCID

Jarkko Hautala 🆔 http://orcid.org/0000-0002-7402-6364
Miia Ronimus 🆔 http://orcid.org/0000-0003-3231-3442
Enni Junttila 🆔 http://orcid.org/0000-0002-9867-0154

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