

Perspectives on Early Childhood Psychology and Education

Volume 7
Issue 2 *Helping Stakeholders Promote
Behavioral Outcomes in Early Childhood*

Article 10

October 2023

An Alternating Treatment Design Comparing Small Group Reading Interventions Across Early Elementary Readers

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Recommended Citation

Billingsley-Ring, Madison; Bates-Brantley, Kayla; Ripple, Hailey; Donald, Mallie; Gadke, Daniel L.; and Harry, Sarah (2023) "An Alternating Treatment Design Comparing Small Group Reading Interventions Across Early Elementary Readers," *Perspectives on Early Childhood Psychology and Education: Vol. 7: Iss. 2*, Article 10.

DOI: <https://doi.org/10.58948/2834-8257.1051>

Available at: <https://digitalcommons.pace.edu/perspectives/vol7/iss2/10>

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Cover Page Footnote

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Abstract

Learning how to read accurately and fluently is a critical component for a student's future academic success. Reading fluency is a skill that many students struggle to master. In addition, many students missed out on key skill development due to the loss of instruction from COVID-19. As schools begin to recover from these educational losses, small group reading interventions offer an efficient solution to service multiple students at once. Small group reading interventions such as Repeated Readings (RR), Listening Passage Preview (LPP) and LPP with RR (LPP+RR) have all been demonstrated to be effective methods for increasing reading fluency (Begeny et al., 2009; Begeny & Silber, 2006). Yet few studies have specifically examined the effectiveness of these interventions in comparison to each other in a group setting. The current study compared reading RR, LPP, and LPP+RR in a small group setting to determine which intervention yielded the largest gains in reading fluency.

Keywords: *Academic Intervention, Small Group, Reading Intervention, Elementary, Alternating Treatment Design*

An Alternating Treatment Design Comparing Small Group Reading Interventions Across Early Elementary Readers

Learning to read accurately and fluently is a critical learning component, with decades of literature documenting the correlation between reading ability and future academic outcomes (Koller, 2022). Unfortunately, a significant number of students face difficulty with reading and are not performing at an appropriate age or grade level (Begeny et al., 2009; Schreder et al., 2012). Foundational reading research completed in the late 1990's found that 74% of students who were identified as poor readers in the 3rd grade remained classified as poor readers in the 9th grade (Fletcher & Lyon, 1998). Over twenty years later, The Nation's Report Card (Institute of Education Sciences, 2019) found that across the United States, only 35% of fourth graders were proficient in reading. Taken together, this data indicate that the need for early intervention targeting students who are below proficiency in reading fluency is critical. Specifically, the importance of addressing foundational academic concerns before 3rd grade as prevention for a later academic crisis is imperative (Bates-Brantley et al., 2022). This critical need was further heightened by the COVID-19 pandemic. During the pandemic, schools across the world experienced shutdowns that led to prolonged loss of instruction (Kuhfeld et al., 2020). In the United States over 130,000 schools closed their doors impacting an estimated 57 million school aged children (Boa et al., 2021). With schools closing for a least three weeks and a majority closing for the remainder of 2019-2020 and parts of the 2020-2021 academic year, it is estimated that students lost at a minimum one month of literacy skills with many models predicting regressions larger than those seen when no instruction is provided during summer holiday (Hammerstein et al., 2021). Recent studies evaluating the effects of the pandemic on early learners (i.e. kindergarten students) estimated that early learners lost 67% of their literacy abilities due to

school closure and loss of instruction (Bao et al., 2021). This global crisis further solidified not only the need for effective interventions, but also the need for efficient interventions during formative grades (i.e. kindergarten-3rd grade) (Kearney & Childs, 2021).

Evidence Based Reading Interventions

As a school-age child progresses, skills building is expected from one grade to the next with proficiency in reading expected by third grade (Musen, 2010). However, for some children this skill acquisition does not occur and therefore effective academic interventions are required. Research has focused on finding effective interventions to decrease the gap between a student's grade level and instructional level (Begeny et al., 2009; Bonfiglio et al., 2006; Lee et al., 2007). Repeated Reading (RR) and Listening Passage Preview (LPP) are two interventions which have been used most often to effectively target reading fluency, and they have high empirical support as evidence-based practice for elementary-age children (Begeny 2009; Skinner et al., 1997; Therrien, 2004). Through meta-analytic work and decades of published work, RR is one of the most utilized interventions in the literature to improve reading fluency (Powell & Gadke, 2018). RR has been demonstrated as an effective intervention for increasing a student's reading fluency, by having a participant read a passage multiple times until a predetermined number of words have been read or a fluency criterion is met (Szadokierski et al., 2017; Therrien, 2004). In a meta-analytic review, Stevens et al. (2016) found that RR was the most effective intervention for increasing fluency, specifically for students in grades kindergarten through fifth grade. While RR originated as an independent intervention targeting reading fluency, RR research has expanded and has been linked with generalization of other high order reading skills, including student gains in reading comprehension (Rogers & Ardoin, 2018).

In addition to RR, LPP is one of the most utilized reading interventions present in the literature, and often is compared to

RR (Powell & Gadke, 2018; Swain et al., 2017). LPP was historically utilized to help increase accuracy with reading while also addressing fluency deficits (Begeny et al., 2009; Daly & Martens, 1994). LPP involves the participant listening to a more skilled reader read a passage while following along silently. Following the modeled read, the learner is required to then read the passage independently (Begeny et al., 2009). In a study by Swain et al. (2017), LPP was found to be more effective at increasing the number of words read correctly per minute for an individual student when compared to RR.

Recent research has investigated the benefits of adding LPP before RR. Lee and Yoon (2017) hypothesized that adding the LPP component before the RR would increase accuracy and fluency during the RR. By adding the LPP to RR, the intervention would align with the Instructional Hierarchy that states a student must achieve accuracy before moving on to fluency (Roger & Ardoin, 2018). Rogers & Ardoin (2018) examined the effects of LPP+RR on individuals' reading fluency. Their study compared the effects of RR to LPP+RR and found that both interventions resulted in higher WCPM, but it wasn't until LPP+RR was introduced that those gains in reading fluency were observed.

The Need for Small Group Reading Interventions

Since COVID-19 hit the world in spring of 2020, schools have found themselves needing efficient resources to recover from lost instruction time (University of Virginia School of Education and Human Development, n.d.). The pandemic posed significant educational risks for students in early elementary school who were still learning to read. Specifically, research indicates that while a typical school year often results in the improvement of kindergarten reading scores by 13.8 points on an assessment of early literacy, students who experienced the disrupted 2020 school year were only predicted to increase by 9.5 points (Bao et al., 2020). Additionally, a recent study conducted in Virginia indicated a 13.6% increase in the number of children entering the 2021-2022 school year at

high risk for reading difficulties when compared to pre-pandemic numbers (University of Virginia School of Education and Human Development, n.d.).

With the world entering a “post-pandemic” era, the need for efficient evidence-based interventions for schools to aid in the recovery of educational losses has never been more important. Small group reading interventions offer an efficient solution to service multiple students at once. Even before the pandemic, small group instruction was often used as the primary method for reading instruction and intervention (Foorman & Torgesen, 2001). A small group intervention is defined as an intervention delivered to a group of students who have common skill deficits in an area (Hall & Burns, 2018). Small group instruction is often preferred by educators due to the ability to assist multiple students at once (Elbaum et al., 2000). Small group instruction additionally maps on to the RTI model, which outlines Tier II for small group support (Begeny et al., 2018). Vaughn et al. (2003) found that interventions delivered in a 1:1 ratio and a 1:3 ratio were both effective at increasing reading fluency. However, when the ratio increased to 1:10, the effectiveness of the intervention decreased. Further, a recent meta-analysis by Hall & Burns (2018) found that, overall, small group interventions were effective for reading interventions. Specifically, they found that reading groups were most effective when groups had five participants or less. In a review of small group reading interventions by Begeny et al. (2018), small group interventions were found to be as effective or more effective than individual interventions 80% of the time.

While RR and LPP have historically been utilized as individualized student interventions, multiple studies have reported the success of these interventions in group settings (Begeny & Silber, 2006; Begeny et al., 2009; Chard et al., 2002; Swain et al., 2017). In a previous study by Begeny et al. (2009), the effects of RR, LPP, and Listening Only were compared in a small group setting. The results demonstrated that RR and LPP were more effective at increasing

reading fluency than Listening Only. Additionally, there were no differences between the effects of RR and LPP (Begeny et al., 2009). Among group-based reading interventions, LPP is the most utilized intervention technique and has demonstrated effectiveness with group reading interventions (Begeny & Siber, 2006; Begeny et al., 2009; Begeny et al., 2018). Finally, Begeny & Silber (2006) found that adding LPP to RR resulted in greater improvement in reading fluency when compared to LPP with word list and RR with word list. This study was conducted in a small group setting, demonstrating the effectiveness for small group interventions of LPP+RR.

Current Study

The current study sought to expand the research on small group reading fluency interventions. Specifically, the study examined the effects of RR, LPP, and LPP+RR in a small group setting, using an alternating treatment design to compare interventions and determine which yielded the largest gains across reading fluency.

Method

Participants and Setting

Participants included four elementary-aged students enrolled at a rural public elementary school in the Southeastern part of the United States. All participants were enrolled in the first grade and placed in Tier III services for deficits across reading by their school's Tier III coordination team. All participants were enrolled in a general education curriculum and did not receive special education services. It should be noted that each of these participants was in the spring of their kindergarten year when COVID-19 shut down their school. Students returned in the fall of 2020 on a hybrid schedule and resumed 100% face-to-face schooling in the spring of 2021.

Participants were Clyde, an 8-year-old Caucasian male; Margot, a 7-year-old African American female; Livy, a 7-year-old Hispanic female; and Jade, a 7-year-old African American female. Pseudonyms

were used across participants. All four of the participants were receiving Tier III intervention services 4 times per week and were enrolled in general education. The interventions were implemented in the Tier III classroom at the students' elementary school. The intervention took place twice a week for 30-minutes. Due to the number of students who qualified for Tier III supports and the limited number of resources available, this reading intervention was implemented in a group format. However, it should be noted that this is outside of normative practice for most Tier III interventions. A group reading intervention most closely aligns with the Tier II level of supports. The school which these children attended was in a rural district, with 74.9% of students receiving free and reduced lunches. The district also reported minimal supplemental academic support, with only one full time employee serving as the academic interventionist across 502 students K-5th grade. Academic intervention sessions were run by doctoral school psychology graduate students who served as academic support personnel within the participants' school district.

Materials

Oral Reading Fluency Benchmarking Probes

To find the student's instructional level, easyCBM probes were administered (Alonzo et al., 2006). Students were administered the first grade easyCBM Passage Reading Fluency probes (Alonzo et al., 2006). Instructional level was determined based on Shapiro's (2011) recommendation that instructional level range is from the 25th to the 75th percentile. If a student scored below the 25th percentile, that student would fall in the frustrational category and would be administered the CBM probes of a grade level below (Shapiro, 2011). This process would be repeated until instructional level was found. The easyCBM probes are normed by grade level, and provide percentages relating a student's score to the national average scores for students in that the same grade (Alonzo et al., 2006).

Oral Reading Fluency Reading Probes

During the intervention phase, students read Dynamic Indicators of Basic Early Literacy Skills 8th Edition (DIBELS; University of Oregon, 2018) Oral Reading Fluency progress monitoring probes, which had been updated for 2021-2022. There are a total of 20 progress monitoring passages available, ensuring that the students were exposed to a new passage with each read. Only the first 55 to 65 words were used for the reading passages, which is consistent with procedures in previous literature (Begeny et al. 2009). The passages were shortened to control for time constraints that might occur. The number of words in each passage were based on the students' easyCBM results. Median scores on the Passage Reading Fluency probes gave an estimated number of words that each student could read in one minute. These median scores were used to calculate the number of words a student could read for a passage that would take approximately 3 to 4 minutes. All passages were administered according to standard administration outlined by DIBELS 8th Edition Oral Reading Fluency instructions (University of Oregon, 2018).

Additional Materials

The researcher additionally utilized materials of a stopwatch and clipboard. The stopwatch was used to record both reading time and instructional time of the interventions. The researcher used a clipboard when implementing the intervention to prevent the students from seeing the data collection.

Experimental Design

An alternating treatment design was utilized to compare the effects of RR, LPP, LPP+RR, with a control condition in a small group setting. The control condition was utilized to compare the effects of the interventions to a condition of no implemented intervention. Alternating treatment designs are the preferred design for single-subject design research when examining the

effectiveness of skill-building interventions (Riley-Tillman & Burns, 2009). Each participant received a total of 13 sessions including baseline (BL) across a nine-week time period. The participants received a total of ten trials of the different intervention conditions. The participants received three trials of the control condition, three trials of the RR condition, two trials of the LPP condition, and two trials of the LPP+RR condition. The order in which conditions were implemented was randomized using an internet-based list randomizer. The students were presented the intervention in a group format; therefore, all participants received the intervention at the same time. Due to the intervention being group-based, the order in which each participant read was randomized. Each participant randomly rotated between reading first, second, third, or fourth for every condition. By randomizing the order that the students read, it prevented one student from reading fourth during each trial and, as a result, having more exposure to the passages than the other students.

The dependent variable measured was words correct per minute (WCPM). To calculate WCPM, the researcher divided the number of words read correctly by the amount of time spent reading.

Data Analysis

Treatment effects were primarily analyzed through visual analysis of the graphed data. Visual analysis involves examining the graph's level of trend, variability, and changes in level from the BL conditions to intervention. (Kratochwill et al., 2010). Effect sizes were also calculated through nonoverlapping of all pairs (NAP) (Parker & Vannest, 2009). For the purpose of this study, NAP compared the different conditions to one another in order to quantify the effect sizes of each condition.

Procedures

Across all conditions, the researcher greeted the group of students with developmentally appropriate language. The researcher

began each session by saying, "Today we are going to be reading some stories together. I want everyone to try their best when reading our stories. Remember that, during our reading, we all need to be on 'good behavior mode.'" Good behavior mode was a series of rules that the students had to follow while participating in the intervention. The first rule was to always do their best reading. The second rule was to listen to the directions given. The third rule was to follow along silently on their paper when the researcher or the other students were reading. The fourth rule was to respect their friends when they read by not speaking or distracting them. Before each session began, the researcher and students remembered the rules of 'good behavior mode,' and entered good behavior mode by swiping their hand in front of their face while saying, "Entering good behavior mode."

Before each session, the students also played "musical chairs." The musical chairs game arranged the students in the order that they would read for the day. The order of reading was prearranged by the researcher as explained above. Each student was told to sit in chair one, two, three, or four. The game of musical chairs made the process of determining who was reading easier for data collection and helped eliminate additional prompts for the next student to read.

Benchmarking

To determine the students' instructional level, easyCBM probes were administered according to the manualized procedures outlined by easyCBM (Alonzo et al., 2006). Students were administered the first grade easyCBM Passage Reading Fluency probe (Alonzo et al., 2006). The students' percentiles on the easyCBM passages were based on the winter national norms. Clyde, Margot, and Livvy all performed at the 25th to 50th percentiles for Passage Reading Fluency at first grade. Jade performed at the 25th percentile for Passage Reading Fluency at first grade.

Baseline

BL data were collected before the interventions were implemented. Three BL passages were utilized. The passages used for BL fell under the same guidelines as the intervention passages. BL probes were presented in isolation; each participant completed the BL reading probes separately. The researcher provided standard instructions. The researcher would not provide any corrections but would provide the word if the student hesitated longer than 5 seconds.

Repeated Readings

The RR condition was modeled after the procedures described in Begeny et al. (2009). Each student was provided with the reading passage before instructions were given. The researcher began by repeating the standardized instructions. The instructions explained that each student was going to read the passage once, and while the other students were reading, they should follow along silently on their own paper. The students were told to do their best reading and if they had trouble with a word, the researcher would help them with it. If the student misread a word, hesitated longer than 5 seconds, or skipped a word, the researcher would provide that word. Once the researcher finished with the instructions, the student in chair one was instructed to read the passage while the other students followed along silently. Once the first student finished reading, the same procedures were provided to the students in chairs two, three, and four. After each student finished reading, they were removed from the table to a separate area and were instructed to read the passage again. WCPM data were collected when the student was taken to the separate location.

Listening Passage Preview

For the LPP condition, the students were provided with their reading passage at the beginning of each session. The researcher began the session by outlining the standardized instructions,

stating that students would silently follow along on their paper while listening to the researcher read the passage. Once the instructions were given, the researcher read the passage at a grade-level appropriate WCPM rate. The researcher then removed the students from the group and measured their WCPM similarly to the RR condition.

Repeated Readings with Listening Passage Preview

During the LPP+RR condition, the researcher provided each student with the reading passage. The researcher then explained the instructions to the students. The researcher instructed the students to follow along silently on their paper while the researcher read. The words were read at a grade-level appropriate WCPM rate. The researcher then explained that each student would read the passage once. If the student misread a word, skipped a word, or hesitated for longer than 5 seconds, the correct word would be provided by the researcher. The students who were not reading were instructed to read along silently while their peers read. Once all of the students read, they were removed from the table to read in a separate location for data collection. The procedures for data collection during RR were the same for the LPP+RR condition.

Control Condition

During the control condition, each student was provided with a reading passage. The control condition was not conducted in a group format but individually with each student. The students were taken to an area with only the researcher and the student. The students were instructed to read the passage by themselves. The student would only read the passage one time and no errors were corrected by the researcher. If the student hesitated longer than 5 seconds, the researcher provided the word.

Procedural Integrity

Interobserver agreement (IOA) was collected for 84% of the sessions. A trained specialist level or doctoral school psychology graduate student served as the second observer. The second observer had a second assessor's copy of the passage in order to collect data on each student's WCPM. IOA was collected by calculating the number of agreements divided by total agreements plus disagreements and dividing that number by 100. For Clyde, IOA was 99.21%. For Margot, IOA was 98.32%. For Livvy, IOA was 99.02%. For Jade, IOA was 98.31%.

To preserve treatment integrity, checklists for each condition were created for the researcher to follow. Treatment integrity was collected for 84% of the sessions. Treatment integrity was collected by the main researcher and a second observer who was a school psychology graduate student. Treatment integrity was measured by making checkmarks on a procedure sheet for each correct step followed by the researcher. To calculate treatment integrity, the total number of steps delivered was divided by the total number of steps and multiplied by 100. Treatment integrity was 100% for all sessions.

Results

Clyde

Clyde's results for WCPM during the alternating treatment design are presented in Figure 1. The preliminary results of the graph indicate that the LPP+RR condition resulted in the greatest change in level and highest WCPM. The LPP+RR condition demonstrated low variability between the two data points. The RR condition showed high variability; however, there was an increasing trend. Based on the last data point for RR, the results of the graph show similar effectiveness as LPP+RR. For the LPP condition, only one data point was collected due to an absence on that day of data collection. The LPP condition showed higher WCPM than both BL and the control condition; however, LPP was not as effective as RR and LPP+RR. Clyde's intervention data for the control condition showed an increasing trend for WCPM. NAP was computed to

calculate the effect sizes and compare BL to the intervention conditions and the control condition to the intervention conditions. The NAP effect sizes are presented in Table 1.

Margot

Margot's WCPM data can be found in Figure 2. The graph showed immediate changes in level in WCPM for RR, LPP, and LPP+RR. There was no immediate change in level when comparing BL to the control condition. LPP, RR, and LPP+RR, all show increasing trends in WCPM, additionally with little variability. The control condition showed slight variability with a decreasing trend. Overall large effects were seen when baseline levels of WCPM were compared to baseline levels. Table 1 presents NAP scores across conditions.

Livvy

Livvy's intervention data is presented in Figure 3. NAP was calculated to determine the overall effect sizes between the different stages and conditions throughout the intervention and are presented in Table 1. Livvy had an immediate change in level from BL to intervention for both RR and LPP+RR. There was a slight change in level from BL to the control condition and LPP; however, the WCPM for the initial data points of LPP and the control condition were roughly the same. Both LPP and RR showed an increasing trend for WCPM, whereas LPP+RR exhibited a decreasing trend. Additionally, the control condition was increasing in trend.

Jade

Jade's WCPM can be found below in Figure 4. Jade's graph showed immediate changes in level when researchers compared BL to RR and BL to LPP+RR. There was a slight change in level from BL to LPP; however, BL to control conditions showed no change in level for WCPM. There was little variability in BL, control conditions, and the intervention conditions. LPP and the control conditions demonstrated an increasing trend for WCPM.

NAP was calculated to obtain the effect sizes comparing the different intervention components. These results are displayed across Table 1.

Table 1
NAP Results

	BL-C	BL-RR	BL-LPP	BL-LPP+RR	C-RR	C-LPP	C-LPP+RR	RR-LPP	RR-LPP+RR	LPP-RR+LPP
	NAP	NAP	NAP	NAP	NAP	NAP	NAP	NAP	NAP	NAP
Clyde	0.67*	1.0**	1.0**	1.0**	0.89*	1.0**	1.0**	0.33	0.83*	1.0**
Margot	1.0**	1.0**	1.0**	1.0**	1.0**	1.0**	1.0**	0.67*	0.67*	0.75*
Livvy	1.0**	1.0**	1.0**	1.0**	1.0**	0.67*	1.0**	0.25	0.75*	0.75*
Jade	0.78*	1.0**	1.0**	1.0**	1.0**	0.83*	1.0**	0.50	1.0**	1.0**

Note: BL: baseline; C: control; RR: repeated readings; LPP: listening passage preview; LPP+RR: listening passage preview with repeated readings; NAP: nonoverlapping of all pairs. Large effect sizes**, Medium effect sizes*, all other effect sizes: small effect sizes.

Figure 1

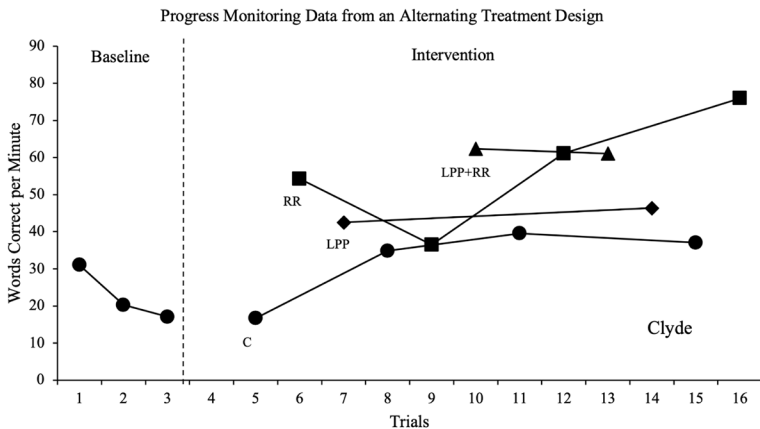


Figure 2

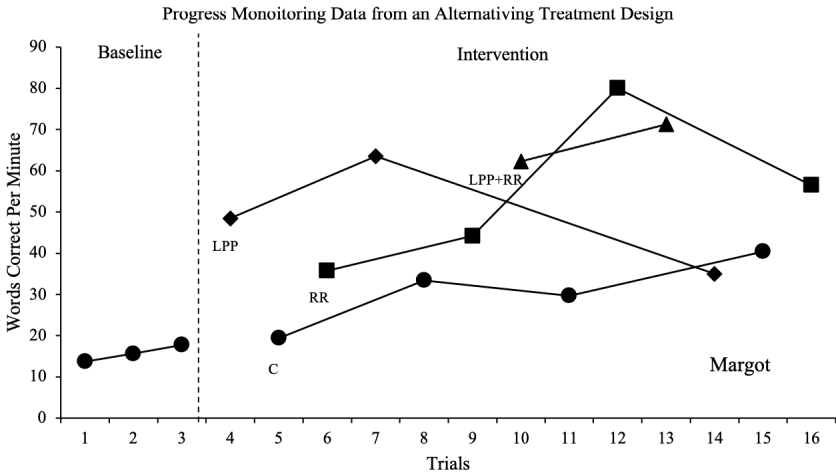


Figure 3

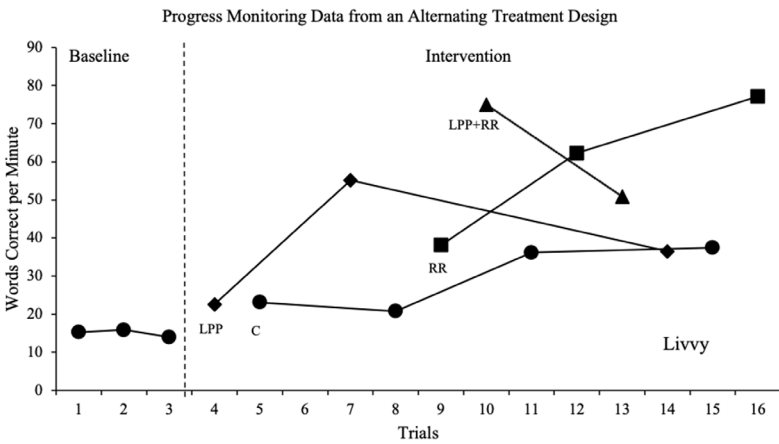
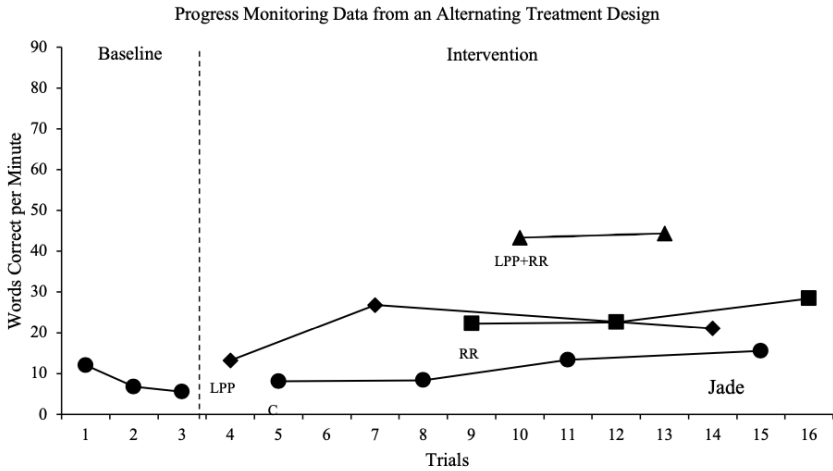


Figure 4



Discussion

As professionals in the field of education begin to address the needs of young students who experienced a significant disruption in their curriculum due to the COVID-19 pandemic, the need has never been more dire for effective, efficient reading interventions that can be delivered at the group level. In fact, a recent study has identified a significant increase in students at high risk for reading difficulties from pre-pandemic to the present (University of Virginia School of Education and Human Development, n.d.). This study was designed to determine the effectiveness of a small group reading intervention, comparing the interventions of RR, LPP, and LPP+RR. Although research has shown that small group reading interventions utilizing RR, LPP, and LPP+RR are effective, no study has compared the interventions using an alternating treatment design (Begeny & Silber, 2006; Begeny et al., 2009). The current study expands on research done by Begeny et al. (2009) which found that RR and LPP are effective in a small group setting for increasing reading fluency. LPP+RR was added as a comparison intervention due to its effectiveness at increasing fluency and

accuracy, as well as findings from previous research that showed that LPP+RR was more effective than RR and LPP alone (Begeny & Silber, 2006; Rogers & Ardoin, 2018). LPP+RR may be a more effective intervention to use with younger readers who are trying to gain accuracy and fluency quickly. The results of this study demonstrate that all conditions (RR, LPP, and LPP+RR) resulted in higher WCPM for each student when compared to the control conditions and BL conditions.

For Clyde, the LPP+RR condition proved to be the most effective intervention, as demonstrated by NAP and visual analysis. Specifically, LPP+RR showed the largest change in level from BL and exhibited the lowest variability. However, both LPP and RR were effective at increasing WCPM when compared to BL and control conditions. For Margot, LPP+RR and RR both resulted in large increases for WCPM when compared to BL and control conditions. RR resulted in the largest WCPM and had significant effect sizes when compared to BL and control conditions. Additionally, LPP was effective at increasing WCPM, but it did not show as substantial gains as RR and LPP+RR. Overall, RR was the most effective at increasing Margot's WCPM. For Livvy, there was high variability in each intervention condition. LPP+RR demonstrated moderate effect sizes when compared to RR and LPP, whereas the comparison between LPP and RR yielded weak effect sizes. For Jade, LPP+RR proved to result in the largest gains in WCPM when compared to the other interventions. Jade demonstrated the lowest accuracy when compared to the other participants at the beginning of the study. The fact that LPP+RR demonstrated the greatest gains in WCPM adds to the research that supports the effectiveness of LPP+RR at increasing accuracy and fluency (Lee & Yoon, 2017). Although all of the interventions in this study increased WCPM, LPP+RR proved to be the most effective at increasing reading fluency for most participants. RR was more effective than LPP at increasing WCPM, but RR's increases were not at the same level as LPP+RR.

Limitations

Because of factors occurring during the implementation of this intervention, the increases in reading fluency cannot be solely attributed to the intervention. Several other environmental factors could have affected the participants' increases in reading fluency. Environmental factors that could have affected the internal validity include general classroom instruction and curriculum, as well as other services received in the Tier III classroom when the researcher was not present. Another noteworthy limitation is the process of data collection. Due to the intervention being delivered in a small group format, the researcher had to control for data collection by having data collection occur in a separate area of the room. This resulted in a time gap between when students were provided the intervention and when the students' data was collected. The delay between the intervention's delivery and data collection could have resulted in lower WCPM. Although this effect was considered and the students read in a randomized order, the researcher cannot determine what effect this delay had on WCPM. Future research should examine if a time delay between intervention and independent reading affects students' WCPM. Lastly, due to time constraints, this intervention took place over a 9-week period. Therefore, each intervention could only be provided a maximum of three times; however, the interventions were most commonly implemented twice. Future research should aim to collect more data points for each intervention to ascertain whether different or novel patterns in responding may emerge. Finally, this research study only included four participants. Replication and verification of findings are encouraged with future projects that include additional participants.

In conclusion, this study examined the effects of different reading interventions on WCPM in a small group setting. All four of the participants were chosen due to their difficulties in reading fluency, and were shown to have improvements in their WCPM. The improvements in WCPM were evident during intervention and

generalized to novel passages, as evident in the control conditions and in progress monitoring. Three out of the four participants reached instructional level in reading fluency for spring first grade norms. Results indicated that these reading interventions are additionally effective when provided in a small group format. The small group format could prove useful for Tier II interventions in the classroom and for students who are experiencing difficulty after missing instruction due to COVID-19.

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