



Increasing Fluency in Middle School Readers

An NWEA Research Study conducted through a grant from Reading Reimagined, an Inclusive Research and Development Program with Advanced Education Research and Development Fund (AERDF)—July 2023

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Abstract

This study examines the effects of a newly developed fluency protocol on historically marginalized students in three Grade 6 classrooms in a large urban school district. The protocol combines Repeated Reading, a practice proven to be effective in fluency work, with opportunities to focus on specific reading strategies for building language and meaning through word and sentence analysis. The protocol also includes a student engagement aspect, asking students to set goals around fluency and to have a say in which texts are used during the study. The protocol was designed for ease of use and does not require that educators have prior knowledge of reading instruction. The intervention was especially effective for students falling below the 50th percentile on the reading assessment used. The qualitative component of the study—teacher interviews and surveys—provided rich feedback that can inform future application of the protocol as well as inform future research.

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Executive Summary

This study investigates the effects of an enhanced reading fluency intervention using a fluency protocol (Repeated Reading, language strategies at the word and sentence level, and student engagement via culturally relevant passages and goal setting) with Grade 6 students from historically marginalized populations. The key quantitative measure used was Capti Assess with ETS® ReadBasix™, which was administered pre- and postintervention as well as several weeks later during a delayed/lagged test.

The study provided teachers with a reading fluency protocol and with professional learning about its implementation. Although the study is too limited to produce generalizable results, and the sample size does not allow for a causal relationship to be determined, findings for some students are positive. Students who scored below the 50th percentile on the Capti Assess Reading Efficiency subtest demonstrated a statistically significant difference between the pre- and posttests. The student sample size was not robust enough to make determinations about the impact of the protocol on multilingual learners.

These findings are strengthened and further contextualized by teacher interviews. Teachers noted observing a positive impact from the protocol on students' reading abilities, specifically for those students who previously performed below the grade-level expectations for reading. Teachers identified that the practice of Repeated Reading improved reading fluency, also noting that the practice of Repeated Reading was not a common occurrence outside of the study.

Fluency, essential to reading comprehension, deserves continued attention for students in need at any age.

1. Introduction

1.1 Scope of the Challenge

According to 2019 National Assessment of Education Progress (NAEP) data, only 32% of eighth-grade students performed at or above the level of “proficient” in reading. Scores for historically marginalized student groups (e.g., Black, Latinx) are significantly lower than the national average. Research indicates that reading fluency is a significant contributing variable to low reading performance among adolescents (Clemens et al., 2017). Improving fluency is made more challenging by two factors. First, some historically marginalized students report a sense of disenfranchisement in school settings (Huang, 2018). Second, teacher-preparation programs typically train only elementary teachers on how to teach reading, leaving little opportunity for secondary teachers to learn the skills needed to improve fluency (Drake & Walsh, 2020).

1.2 Study Significance

Our hypothesis was that the intervention strategy of Repeated Reading could be improved by directly targeting student engagement and teacher capability to support underlying reading skills at the word and sentence level (e.g., morphology, syllabication, and sentence analysis) (Bhattacharya, 2020; Kim et al., 2017; Toste et al., 2017). Additionally, we believed the enhanced Repeated Reading fluency protocol would directly support student engagement through an emphasis on cultivating a growth mindset and engaging with purpose (goal setting and oral reading performance) and relevance (student input on passage selection) (Christ et al., 2018; Clark, 2017; Didion & Toste, 2022).

Our objective was to find an effective method for improving fluency outcomes for historically marginalized middle school students who struggle to read. We approached this objective by investigating a method of adapting and accelerating an evidence-based fluency intervention.

Our study was designed to empower Grade 6 educators with an easily administered fluency protocol ([Appendix A](#))—accompanied by a short training session on use—to address reading fluency with simple instruction that would not require extensive training in teaching foundational reading skills. The study was also designed to make the student a partner in the work through goal setting, passage selection, and reflection. We designed the protocol to be scalable, so that it could be administered easily outside of the original study, and for use with other middle- and high-school grades. We also plan to make it free for educators to access to improve student reading fluency outcomes. While the protocol was designed for teachers to use with older students still in need of fluency instruction, we focused solely on Grade 6 for the purposes of this initial study.

2. Methodology

2.1 Project Information

For this project, we developed an enhanced fluency protocol that includes Repeated Reading, word recognition and language comprehension strategies, and a student engagement component with culturally relevant passages and goal setting.

2.2 Objectives

There were three key objectives to the study:

- Our experimental Fluency Protocol intervention was intended to improve upon the standard Repeated Reading protocol that targets oral reading fluency, including automaticity with word recognition and prosodic reading that supports comprehension. We began by implementing a standard Repeated Reading protocol, which included practicing reading a passage over the course of five instructional days via modeled reading, echo reading, choral reading, and partner reading to a level of automaticity and prosody. Please see [Section 2.5](#) for a more detailed explanation of the Fluency Protocol.
- Our goal-setting activities were designed to improve student engagement and agency. The student engagement and agency constructs supported in the Fluency Protocol intervention included the following: (a) growth mindset through ability-validation goals and guided reflection; and (b) increased purpose and relevance for school learning through student choice, performance (for family, caregivers, or community), and guided reflection.
- Our protocol was designed to provide educators who likely had not received training on how to teach the foundational skills of reading with an easy-to-use tool to improve their students' fluency rates—and thus, their students' comprehension.

2.3 Revised Research Questions

We approached the study with four questions in mind:

- After receiving the Fluency Protocol intervention, is there a significant difference in students' reading fluency scores between pretest, posttest, and delayed/lagged test, as measured by the Capti Assess Reading Efficiency subtest?
- After receiving the Fluency Protocol intervention, is there a significant difference in students' overall reading scores between pretest, posttest, and delayed/lagged test, as measured by Capti Assess (including these subtests: Word Recognition and Decoding, Vocabulary, Morphology, Sentence Processing, Reading Efficiency, and Reading Comprehension)?
- Does emergent bilingual status or other demographic characteristics (e.g., socioeconomic status, age of student) moderate students' growth in fluency scores from the pretest to the posttest, as measured by the Capti Assess Reading Efficiency subtest? *In our sample, all but one student in the group of students who scored below the 50th percentile (according to the Capti Assess Reading Efficiency subtest) on the pretest had emergent bilingual status; therefore, we were not able to run this analysis.*
- After receiving the Fluency Protocol intervention, which includes students selecting passages for engagement, is there a significant difference in students' engagement in learning from the pretest to the posttest, as measured by the Student Engagement Instrument (SEI)?

2.4 Participants

The study took place in Gwinnett County Public Schools, Georgia. Per the district's Data Governance Division, data from school year 2022–2023 show that approximately 83% of students enrolled with the district are from historically marginalized populations (34.5% Hispanic, 32.5% Black, 11.7% Asian or Asian/Pacific Islander, 0.2% American Indian or Alaska Native, and 4.2% identifying as two or more races). Other important district demographics include an approximately equal balance of gender between female and male (49% female vs. 51% male), approximately 26% of district students identifying as English Language Learners, and approximately 56% of the district qualifying for free or reduced lunch.

For the Gwinnett County Public School's middle school with which we worked directly, the demographics for 2022–2023 show that 98% of students are from historically marginalized populations (78% Hispanic, 12% Black, 7% Asian, and 1% identifying as two or more races). Female students comprise 49% of the student population of the school, and male students comprise 51%. A majority of students (91%) qualify for free lunch or reduced lunch.

In the three classrooms we studied, the 72 students are evenly split between female and male, and 97% of the students are from historically marginalized populations (74% Hispanic, 13% Asian, 10% Black, and 1% identifying as two or more races). Approximately 69% of students qualify for free or reduced lunch plans, and 76% identify as English Language Learners.

At the beginning of the Capti Assess pretest, our potential pool was 72 students. Of those, all 72 students successfully completed both parts of the test. For the Capti Assess posttest, 63 of the 72 eligible students completed the test. Of the 63 students who completed the pre- and postintervention tests, 56 students completed the delayed/lagged assessment. The total number of cases in the data section will show slight variance due to some students finishing a test section but not inputting enough data for a valid score on that section.

2.5 Modifications and Consistencies with Original Design

2.5.1 Quantitative Changes

Due to the recruitment of a smaller sample size than originally planned ($n = 3$ teachers, 3 classes, 72 Grade 6 students), our methods changed from the original design. We no longer could separate classes into three groups (Group 1, control/business as usual; Group 2, Repeated Reading only; Group 3, Repeated Reading + Fluency Protocol) with enough statistical power to determine causality between three intervention groups within a hierarchical linear model, so we changed to a pretest/posttest quantitative research design. We also added teacher interviews for a mixed-methods study. The duration of the study remained the same, with students receiving 30 days of instruction using the enhanced protocol.

We investigated effects at the individual student level, across time. There was no randomization at the class or teacher level:

- All students received a Capti Assess pretest, the Fluency Protocol intervention, then a posttest and a delayed/lagged posttest two or three months later. Students also received the SEI before the first intervention and at the time of the posttest.
- We added an interview ([Appendix B](#)), conducted virtually, to further explore teachers' perceptions of the experience.

2.5.2 Qualitative Changes

The smaller sample allowed us to supplement quantitative data with qualitative data. The shift in the study's design to include qualitative data allowed for additional rich and contextualized insight from teachers about the impact of the intervention. The qualitative addition to the study focused on interviewing teachers, who discussed student changes before, throughout, and after the Fluency Protocol intervention. Interviews occurred at the end of the intervention and were reflective in nature. The qualitative approach was rooted in theory where themes emerge from the statements provided by teachers. These themes provided context to the quantitative scores and are useful to guide next steps in future studies. These themes also provide information about why the Fluency Protocol intervention may have impacted student growth. These interviews were conducted virtually. Teachers were interviewed individually in 45-minute time slots. The audio of the interviews was recorded and digitally transcribed.

The interview questions focused on three main areas—effects on fluency, changes in overall reading, and student engagement:

- Area 1: Effects on fluency
 - How, if at all, have you seen this method of instruction impact students' fluency for your group of students who struggle with reading?
 - What behaviors did you observe that would serve as evidence of the impact on students?
 - Can you provide an example of a student who has made noteworthy progress in fluency as a result of the fluency protocols?
 - Have you seen this intervention being applied outside intervention time?
- Area 2: Overall reading
 - How did you address any emotional or social needs of students while engaging in the Fluency Protocol intervention?
 - How has this intervention impacted students' attitudes toward reading?
- Area 3: Student engagement
 - Was student engagement improved by the practice of voting for the passages students would focus on?
 - What makes you believe students were more engaged, demonstrated the same level of engagement as normal, or were less engaged?
 - What major observation have you made of the behavior of your students (e.g., body language and other observable behaviors) that provides evidence of this engagement?
 - Has this intervention impacted students' engagement during reading (outside the intervention time)?

Many aspects of the original design carried forward to the revised model:

- Educators received a two-hour training on the study and the Fluency Protocol.
- Educators worked with students to create buy-in, discussing with students the meaning of fluency and why it is important, and emphasizing the connection between reading and comprehension. Teachers also explained the study and the students' role in it. Parents were notified, with an option to deny participation. Students then completed a goal-setting activity ([Appendix C](#)).

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- Educators taught two mini-lessons ([Appendix D](#)), which focused on strategies students would use during the study: using affixes and syllables to assist with the decoding of multisyllabic words. Each lesson was designed to last 15 minutes and to require no prior knowledge from educators for teaching foundational skills.
- Students were able to vote, by class, for the passages they wanted to focus on throughout the study. NWEA carefully chose these passages to align both quantitatively (readability indices) and qualitatively (human analysis of grade-level appropriateness) to the needs of Grade 6 students. The passages were identified as likely being of high interest to students from historically marginalized populations. Students were able to select from a pool of 18 passages to narrow down the pool to the six passages per class that would be read as part of the study.

2.7 Fluency Protocol Intervention

We have attached the Fluency Protocol intervention for this work as [Appendix A](#). The same protocol was used in all three classes. Each class's work featured student buy-in, teacher support and modeling, peer engagement, and direct practice of specific reading skills. We designed the steps in the protocol to make students feel comfortable and supported (e.g., by specifying the use of choral reading rather than singling out students to read in front of an entire class).

Teachers received a two-hour training session on the purpose and design of the study (one hour) and then on the Fluency Protocol itself (one hour), including opportunities to engage in each of the strategies that are included in the protocol. The session covered the following:

- Explanation of involved parties, including AERDF, Reading Reimagined, and NWEA
- The reasons AERDF issued an RFP focused on improving student outcomes for historically marginalized students post Grade 3, and an explanation of why NWEA had a strong desire to help with the issue
- Purpose and overview of the study
- A detailed explanation of the Fluency Protocol—Steps in the study, timing of each session, and detailed descriptions of strategies used each day, along with time for educators to step into the student role by practicing each of the strategies
- A question-and-answer period

The training session PowerPoint® was then provided as a resource for teachers to reference as they administered the protocol.

It is important to note that the training was purposely brief to align to the objective we set for an easy-to-use tool that did not require deep expertise in how to teach the fundamentals of reading. The teachers who kindly participated in the study varied in experience, enabling us to understand how the Fluency Protocol resonated with an audience of mixed backgrounds.

For the sake of privacy, the teachers in the participating classrooms have been given the pseudonyms of Mrs. Carter, Mr. Patel, and Ms. Williams.

- Mrs. Carter, a highly experienced educator with more than 26 years of teaching, has experienced numerous educational policy shifts from the federal government. Though she currently teaches middle school, she has gained a wealth of experience by teaching students across different age groups.

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- Mr. Patel, an active participant in the English Language Learner team, is a novice teacher specializing in teaching language arts to sixth-grade students. His students have recently tested out of ESOL and are experiencing a transitional phase, requiring his expertise to help them in their language acquisition journey.
- Ms. Williams, a seasoned educator in her third year at a middle school, is responsible for teaching sixth-grade language arts. She started her career as an ESOL teacher before moving on to teach gifted students accelerated in general education classes. She engaged in the study with her gifted class.

In total, students received 20 minutes of intervention each day. A single intervention cycle lasted five days, and teachers administered six cycles, resulting in 600 minutes of intervention time. The administration of Repeated Reading took approximately 10 minutes per day, with teachers scaffolding each session to help students become more independent as they read (e.g., the teacher modeled in Sessions 1 and 2, shifted to choral reading in Sessions 3 and 4, and culminated with independent reading at the start of the lesson in Session 5). The second component—the specific reading skills practice—took approximately 10 minutes each session given, and, depending on the day, it included: (a) word meaning study; (b) morpheme analysis to support multisyllabic word recognition; (c) syllable analysis to support multisyllabic word recognition; and (d) sentence-level analysis to support both syntactic and semantic understanding at the sentence level and understanding of important ideas in the text. Student choice played a key role in the protocol, as students voted for the passages that would be used in their work. Students were provided with a summary document ([Appendix E](#)) outlining titles, authors, and descriptions for 18 passages. In each class, each student cast 5 votes for the passages they were most interested in, and the top 6 passages became the focus for the intervention. Table 1 indicates the passages students selected, by class (using teacher pseudonyms).

Table 1

Class Selection of Passages

Passage title	Class(es)
God Is God Because He Remembers	Carter, Patel
Try Something New for 30 Days	Patel
Robots	Patel, Williams
TikTok has changed music . . .	Carter, Patel, Williams
The Elephant and the Crocodile	Carter, Patel
Long Walk to Freedom	Patel
What It's Like to Be the Child of Immigrants	Williams
The Creativity and Community behind Fanfiction	Williams
The Man, the Boy, and the Donkey	Williams
Memories of a Former Migrant Worker	Williams
How You See Yourself	Carter
At the Head of Her Class, and Homeless	Carter
Photos from a Storm Chaser	Carter

Great care was taken to ensure comparability across the passages regarding quantitative and qualitative appropriateness for Grade 6 readers, and these passages were selected for their high quality and high interest, particularly to students from historically marginalized populations.

Teachers read the selected passages aloud to their classes, modeling fluent reading through clear pronunciation, good pacing, and expression. Students had their own copies of the passages, and they were able to follow along while the teachers read. The next step was echo reading, in which teachers read one sentence of the passage at a time, pausing after each sentence to allow students to read the sentence aloud. Students then engaged in choral reading, in which the entire class read the passage aloud together. Students also worked in pairs to practice their reading, allowing students to give and receive peer feedback.

NWEA conducted implementation fidelity checks using a rubric ([Appendix F](#)) after Session 1 of Cycles 1, 4, and 6. Teachers submitted recordings of the work they did with their students, being careful to respect privacy by not including any student faces. Had issues been discovered with the teachers' modeling of fluency (pacing, expression, and accuracy), teachers would have been retrained; however, all teachers received a rating of at least 85% fidelity at all three checkpoints.

2.8 Instruments

2.8.1 Capti Assess

Capti Assess is a web-based, adaptive reading assessment comprised of six subtests that evaluate six key reading skills: (a) Vocabulary; (b) Sentence Processing; (c) Word Recognition and Decoding; (d) Morphology; (e) Reading Efficiency; and (f) Reading Comprehension. The first five subtests take 5–10 minutes to complete and are measured using multiple choice response. The Word Recognition and Decoding, Vocabulary, and Morphology subtests have 30 items each; the Sentence Processing subtest has 25 items; and the Reading Efficiency subtest has 32–41 items. The Reading Comprehension subtest takes 20–30 minutes to complete and is comprised of 31–32 items. Subtests are shown in Table 2.

Table 2

Capti Assess Subtest Names and Definitions

Subtest name	Subtest definition
Vocabulary	The ability to understand the meaning of individual words
Sentence Processing	The ability to comprehend sentences of varying levels of syntactic complexity
Word Recognition and Decoding	The ability to identify and understand words from the page accurately and efficiently
Morphology	The ability to understand that many words are made up of several meaningful parts
Reading Efficiency	The ability to read the test accurately and at an appropriate rate for comprehension
Reading Comprehension	The ability to understand text by building an accurate mental model

Reliability of Capti Assess is measured for each of the six subtests and for Grade 6, which was the focal grade for this study. All subtests measure a reliability of $\alpha = .8$ to $.9$, except for the Reading Comprehension subtest, which measures $\alpha = .706$. As reported in the technical manual, “These values are at acceptable levels given the number of items for each subtest” (Sabatini et al., 2019, p. 12). Validity was measured through subtest correlations, of which each were moderately to strongly correlated. Yet, dependency between subskills is expected, given the related aspects of reading ability (Sabatini et al., 2019).

2.8.2 Student Engagement Instrument (SEI)

The SEI, a questionnaire developed by the University of Minnesota, is composed of 35 items on a four-point Likert scale ranging from “strongly disagree” to “strongly agree.” It takes approximately 18–22 minutes to complete. The questionnaire was originally created to be administered via paper and pencil, but it was digitally imported onto the Alchemer platform for the purposes of this study. The SEI measures six domains of engagement broken down into affective (psychological) engagement (teacher-student relationships, peer support at school, family support for learning) and cognitive engagement (control and relevance of schoolwork, future aspirations and goals, intrinsic motivation). Reliability (internal consistency) measures estimate $\alpha = .72$ to $.88$ (Appleton et al., 2006, p. 438). Content validity was obtained through item specification frameworks and online reviews of the literature, and concurrent validity was obtained through correlational analyses (positive with academic variables, negative with punitive values) (Appleton et al., 2005).

Note: The SEI questionnaire cannot be included in the appendices due to permissions issues.

2.9 Data Collection

After accounting for parental consent and other program commitments by the students, the sample included three Grade 6 classrooms with 28, 28, and 16 students, respectively. The study used passive parental consent. Two critical foci of the project were student engagement and agency. In particular, the student engagement and agency constructs supported in the Fluency Protocol intervention included growth mindset through ability-validation goals and guided reflection; increased purpose and relevance for school learning through student choice of passages read; and performance for family, caregivers, or community. Our measure of the student experience was a broad, psychometrically sound, commonly used survey of student engagement—the SEI (Appleton et al., 2006). The data collection summary is as follows:

- Quantitative data for reading was gathered via Capti Assess (pretest, posttest, and delayed/lagged test), which was administered via computer.
- Quantitative data for student engagement was gathered via the SEI, which was placed on the Alchemer platform and administered via computer at two time points (pre- and posttest).
- Qualitative data was via pre- and poststudy teacher surveys, as well as via one-on-one interviews with each teacher.
- Data about implementation of protocols with fidelity was gathered via recordings of teachers administering Session 1 of the Fluency Protocol during the beginning of Cycles 1, 4, and 6, and was measured using a fidelity rubric ([Appendix F](#)).

3. Findings

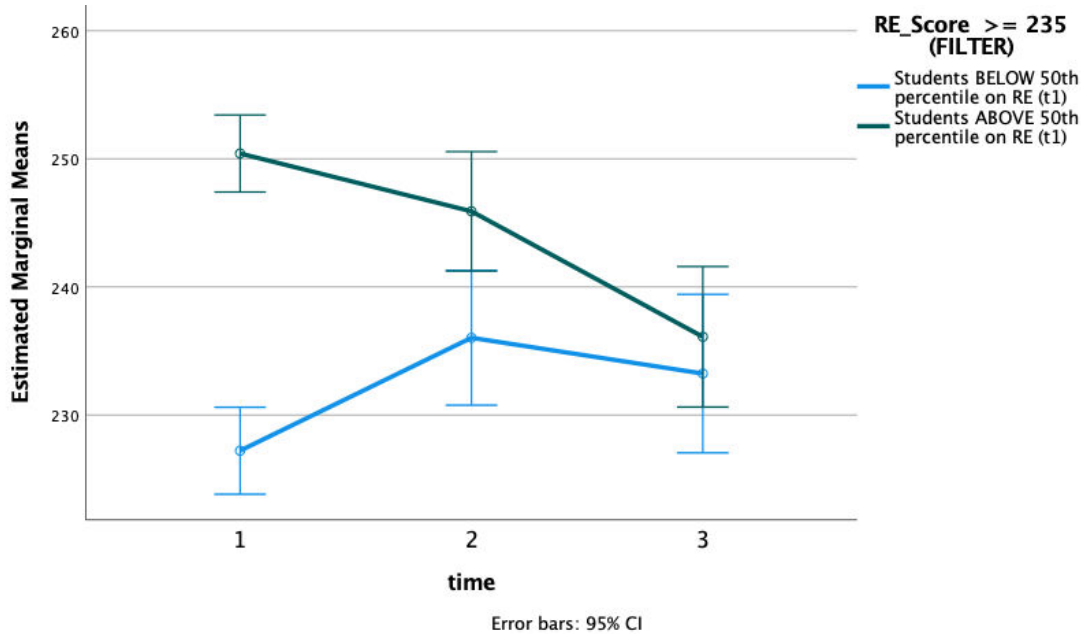
3.1 Quantitative Findings

Q1: After receiving the Fluency Protocol intervention, is there a significant difference in students' reading fluency scores between pretest, posttest, and delayed/lagged test, as measured by the Capti Assess Reading Efficiency subtest?

At pretest, the mean score for students ($n = 50$, students who completed all three Capti Assess Reading Efficiency subtest events) was 240.21 points, with a standard deviation of 14.03 points. At posttest, the mean score on the Reading Efficiency subtest was 241.56 points, with a standard deviation of 13.11 points. After a delay of seven weeks, Capti Assess was readministered to all students. At delayed/lagged test, the mean score was 234.85 points, with a standard deviation of 14.35 points. A repeated measures ANOVA was conducted to compare the effect of the Fluency Protocol intervention on students' reading efficiency subtest score at pretest, posttest, and delayed/lagged test. Overall, there was a statistically significant decrease across time ($p = .02$) with a large effect size ($\eta^2 = .16$). There was not a statistically significant difference between pretest and posttest ($p = .49$); however, there was a statistically significant difference between pretest and delayed/lagged test ($p = .03$), and posttest and delayed/lagged time points ($p < .01$).

Figure 1

Estimated Marginal Means of Reading Efficiency



When selecting only the students scoring below the 50th percentile according to the Reading Efficiency subtest national norms at pretest (235 points), the mean score for students ($n = 22$) at pretest on the Capti Assess Reading Efficiency subtest was 227.22 points, with a standard deviation of 6.47 points. At posttest, the mean score on the reading efficiency subtest was 236.04 points, with a standard deviation

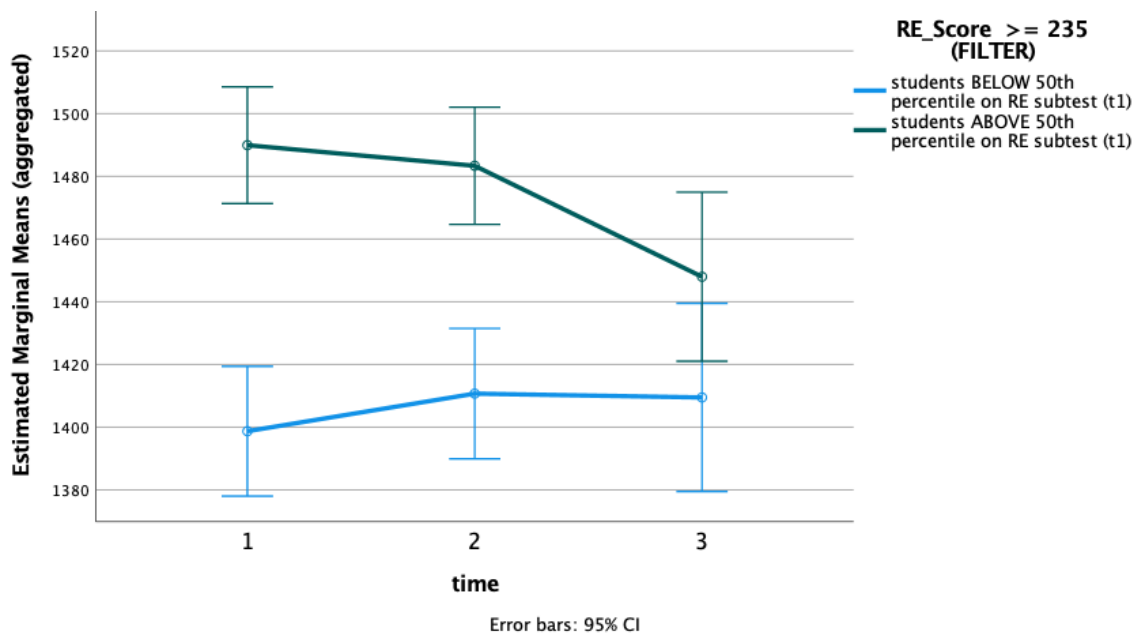
of 10.91 points. At delayed/lagged test, the mean score was 233.24 points, with a standard deviation of 13.90 points. A repeated measures ANOVA was conducted to compare the effect of the Fluency Protocol intervention on students' Reading Efficiency subtest score at pretest, posttest, and delayed/lagged test. Overall, there was a statistically significant increase across time ($p = .007$) with a very large effect size ($\eta^2 = .39$). There was a statistically significant difference between pretest and posttest ($p < .01$), and pretest and delayed/lagged test ($p = .04$). There was not a statistically significant difference between posttest and delayed/lagged test ($p = .37$).

Q2: After receiving the Fluency Protocol intervention, is there a significant difference in students' overall reading scores between pretest, posttest, and delayed/lagged test, as measured by Capti Assess (including these subtests: Word Recognition and Decoding, Vocabulary, Morphology, Sentence Processing, Reading Efficiency, and Reading Comprehension)?

The mean aggregated score for students ($n = 47$) at pretest was 1449.20 points, with a standard deviation of 65.34 points. At posttest, the mean aggregated score was 1450.91 points, with a standard deviation of 59.35 points. After a delay of seven weeks, Capti Assess was readministered to all students. At delay, the mean aggregated score was 1430.79 points, with a standard deviation of 70.24 points. A repeated measures ANOVA was conducted to compare the effect of the Fluency Protocol intervention on students' aggregated score at pretest, posttest, and delayed/lagged test. Overall, there was a statistically significant decrease across time ($p = .02$) with a medium to large effect size ($\eta^2 = .15$). There was not a statistically significant difference between pretest and posttest ($p = .74$), or pretest and delayed/lagged test ($p = .05$); however, there was a statistically significant difference between the posttest and delayed/lagged test time points ($p < .01$).

Figure 2

Estimated Marginal Means of Capti Assess (all subtests)



When selecting only the students scoring below the 50th percentile according to the Reading Efficiency subtest national norms at pretest (235 points), the mean aggregated score for students ($n = 21$) at pretest on Capti Assess was 1398.73 points, with a standard deviation of 50.29 points. At posttest, the mean aggregated score was 1410.71 points, with a standard deviation of 48.90 points. At delayed/lagged test, the mean aggregated score was 1409.49 points, with a standard deviation of 69.38 points. A repeated measures ANOVA was conducted to compare the effect of the Fluency Protocol intervention on students' aggregated score at pretest, posttest, and delayed/lagged test. Overall, there was not a statistically significant difference across time ($p = .22$) with a medium to large effect size ($\eta^2 = .15$).

Q3: Does emergent bilingual status or other demographic characteristics (e.g., socioeconomic status, age of student) moderate students' growth in fluency scores from the pretest to the posttest, as measured by the Capti Assess Reading Efficiency subtest?

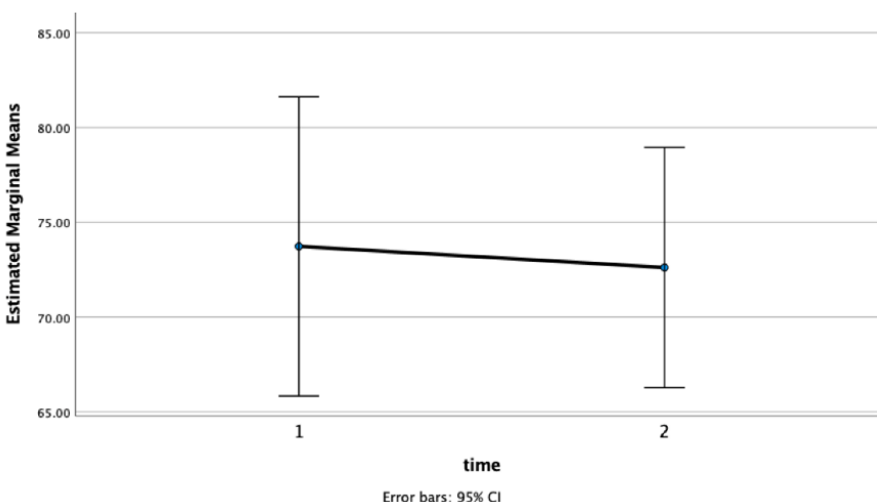
In our sample, all but one student in the group of students who scored below the 50th percentile (according to the Capti Assess Reading Efficiency subtest) on the pretest had emergent bilingual status; therefore, we were not able to run this analysis.

Q4: After receiving the Fluency Protocol intervention, which includes students selecting passages for engagement, is there a significant difference in students' engagement in learning from the pretest to the posttest, as measured by the Student Engagement Instrument (SEI)?

At pretest, the mean score for students ($n = 26$) on the SEI was 73.73 points, with a standard deviation of 19.54 points. At posttest, the mean score on the SEI was 72.62 points, with a standard deviation of 15.69 points. A repeated measures ANOVA was conducted to compare the effect of the Fluency Protocol intervention on students' SEI score at pretest and posttest. There was not a statistically significant difference between the two time points ($p = .74$).

Figure 3

Estimated Marginal Means of SEI



3.2 Qualitative Findings

NWEA staff conducted postintervention interviews with the three intervention teachers. Major themes emerging from the interviews include the following:

- Positive impact of the protocol on students' reading abilities and attitudes toward reading, particularly for those who were considered to be reading below grade level (based on teacher perception and non-Capti-related data) and who lacked confidence in their abilities
- Improvement in reading fluency attributed to repeated practice of reading aloud, which students did not do often outside of the intervention
- Challenges faced by teachers in finding time to complete the activity and in engaging high-achieving students, and suggestions on how to address these challenges

The qualitative findings complement the quantitative findings by providing contextual information. The results suggest that the implemented protocol had a positive impact on certain aspects of students' reading abilities and attitudes toward reading. Notably, repeated readings with peers were found to increase students' confidence levels. However, it was observed that the protocol appeared to be more effective for students who were below grade level and who lacked confidence in their abilities, as reflected by our quantitative measure falling below the 50th percentile. Furthermore, some students expressed hesitancy in reading aloud in front of others, which posed challenges for teachers when grouping them for the paired reading activity.

Mr. Patel in the study noted an improvement in fluency when students were paired and read aloud:

When they were reading with their partners, they were taking a long time. But then towards the end, they were reading just a lot more fluently, and they were getting through it. They were able to get through the text faster than they did before and without stopping as many times.

This improvement was attributed to the repeated practice of reading aloud, which students did not do often outside of the intervention. Mr. Patel plans to implement more opportunities in the future for students to read aloud, based on the positive outcomes observed during this study. The protocol is also seen as a valuable tool for gauging students' fluency, and Mrs. Carter suggested having "a more targeted group of students who would need fluency versus those that do not need fluency support."

Regarding student engagement, teachers observed that some students became more engaged in the classroom activity than they normally would have been. This engagement was deeper in relation to the text and the reading task for those students. Though two of the three teachers reported higher engagement, one teacher—Ms. Williams, who implemented the study in her gifted class with high-achieving students—reported higher levels of disengagement. Citing prior experiences with interventions, Ms. Williams's students remained disengaged in the reading material. Ms. Williams used incentives to encourage engagement among gifted students who expressed they had completed tasks like the tasks in the protocol in the past, but in lower grades. This made some gifted students feel that the study was beneath them. Ms. Williams reported, "I'm sorry, because this interview is probably gonna sound kind of jaded because my gifted kids thought they were above the study. They kept saying stuff like, 'We did this in elementary school. Why are we doing this now?'" Despite some students' lack of positive engagement, teachers observed significant improvements in reading fluency.

The study had a positive impact on teachers' confidence in their teaching abilities, particularly for Mr. Patel, who said, "I feel like it's given me a little bit more confidence too. Just having such a good script and having such a good guideline." Though teachers reported higher levels of confidence, they also expressed concerns with the time it took to implement the protocol. Some teachers struggled to find time to complete the activity, and the intervention took away from English language training classes. Ms. Williams suggested that this type of intervention should not be conducted during a regular class block, as there are many skills embedded in the protocol that take time to be discussed.

Overall, interviews suggest the intervention had a positive impact on students' reading abilities and attitudes toward reading, and the findings suggest that incorporating repeated readings with peers can increase students' confidence levels. The protocol was also seen as a valuable tool for gauging students' fluency, and teachers may consider targeting students who would benefit more from fluency support.

3.3 Discussion of Conclusions

Despite the limitations of a small sample size, it was evident that teachers observed a positive effect of the Fluency Protocol intervention with students who began with a score below the 50th percentile on the Capti Assess Reading Efficiency subtest. This supports the findings of previous research showing significant effects of repeated readings on fluency (National Reading Panel, 2000; Therrien, 2004) and of multicomponent interventions inclusive of repeated readings (Shelton & Wexler, 2022; Stevens et al., 2017). Of particular interest in this study was whether a brief, easily trained protocol administered across only 30 instructional days could effect similar improvements. It is noteworthy that teachers observed a positive effect for lower-performing students, even if that impact was not shown to be sustained after the third Capti Assess administration.

Our modified research design did not allow for parsing of the effects of repeated readings alone in comparison to the protocol with additional multicomponent supports. In interviews, some teachers offered a view that attributed growth in reading to the repeated readings, which teachers reported increased students' confidence levels. However, the intervention was more effective for students who were below grade level and who lacked confidence in their abilities. A design comparing the Fluency Protocol to a simple Repeated Reading intervention is clearly warranted to follow up on the views teachers offered.

That no statistically significant effects between pretest and posttest were found when higher initial performers were included in the analysis bears further investigation, as teachers reported perceived improvements in reading fluency. Previous research has found repeated readings to be effective for students with and students without reading difficulties (Therrien, 2004). Possible explanations for the lack of significant effect in the study include sample size limitations, lack of necessity of the intervention for students with higher initial reading fluency, fluency measurement limitations, and shifts in what improves reading most effectively as students become more proficient decoders.

Teachers noted that they struggled to find time to complete the activities and that they worried the intervention took time away from the English language training classes. Although we could not discern the impact of the protocol in ELLs due to lack of a comparison group, the results suggest that many of those students benefitted from the intervention, with large effect sizes for students in the lower 50th percentile. So, while students did not receive the English language training, the study overall increased outcomes for the students.

No improvement in student engagement was found on the SEI, when comparing pretest and posttest. The research literature has expressed a broad concern about middle school students' engagement, so it is unfortunate that the design of the present study did not allow a comparison to a control group also taking the SEI twice. The simple fact of repeated administration of the same assessment may be a factor in the nonsignificant—even slightly declining—score change.

The SEI was chosen as the measure of engagement for this study due to its prevalence in the field, availability, and alignment with school-based engagement. Some of the survey items align with curriculum components and overall engagement and were aimed to serve as a proxy for specific content engagement within the scope of this research. However, upon post hoc exploration, the SEI may not have been the appropriate tool to use for the current research study. The current research aimed to measure student cognitive engagement of curricula and subject-specific content, yet SEI items are very nuanced and single faceted, which may not translate into intervention and subject-specific connections. The SEI measurement subscales (i.e., attendance, relationships with teachers, courses taken) do not adequately measure the engagement goals of the current study, which aimed to explore student interest in content, intervention involvement, expended effort, and perceived value.

Given the potential misalignment between the SEI and the engagement goals of the current research, results should be interpreted with caution.

Some evidence of disengagement with the schedule of repeated assessments (pretest, posttest, and delayed/lagged test) by higher performers is also present. Models of reading development generally do not support a phenomenon of widespread and short-term regression in skills or decreases in fluency, so it is unlikely that this occurred in this study. Instead, considering this is middle school, the decrease in score over time by higher performers is more likely explained by a degree of student disengagement, as described by teachers. In interviews, some teachers mentioned a feeling shared by higher achieving students: that the intervention was too remedial for them. Teachers also noted their own hesitation about taking time away from regularly planned whole-class instructional targets. That said, some of the students whom teachers described as higher achieving and probably benefiting less from the protocol were, in fact, students who grew in their reading fluency across the study. Additional research should be designed to shed light on whether whole-class instructional time is the best use of the Fluency Protocol, and if so, under what circumstances.

The study's sample size precluded finding statistical significance in small effects. While we observed positive growth in mean pretest and posttest scores on both the Reading Efficiency subtest and the overall Capti Assess across the 53 students who ended up participating in all three Capti Assess testing events required by the study, this growth did not overcome the overlap in confidence intervals. To detect small effects in future research on the Fluency Protocol, a larger sample size is needed.

While the studied intervention targeted oral reading fluency, the pre- and postintervention measures did not elicit oral reading. Instead, the measures used a maze silent reading approach to gauge improvements in text reading efficiency. Maze and oral reading tend to correlate more strongly for elementary grades, but they diverge in secondary grades, with oral reading proving a stronger indicator of overall reading comprehension across grades (Shin & McMaster, 2019). In future research targeting oral reading fluency improvements, it is worth investigating whether an oral reading measure may better capture improvements in middle school years.

For students with greater proficiency at word decoding, improvements in reading fluency may center less on greater rate or reading efficiency and more on prosody, an important component of contemporary understandings of reading fluency (Kuhn et al., 2010). Prosody constitutes an important indicator of reading comprehension rather than of automaticity of word recognition (Wade-Woolley et al., 2022). For students with higher initial reading efficiency, it may be enlightening to examine growth effects in reading prosody. However, models of prosody suggest that such improvements are supportive of increases in overall reading comprehension, an effect not detected across the full sample in this study.

Converging research evidence indicates that for students with stronger word decoding automaticity, language comprehension explains more variance in reading comprehension (García & Cain, 2014). While the multicomponent Fluency Protocol included support for language comprehension within selected texts, future research should investigate whether a stronger emphasis on comprehension components might constitute an important lever for overall reading growth for students with stronger initial reading efficiency.

3.4 Recommendations for Future Research

Three areas for future study may be important: defining best application of the Fluency Protocol; investigating effects added by the Fluency Protocol over and above a simple Repeated Reading method; and improving the capture of intervention effects through expanded sample size and refined instrumentation.

Defining best application of the Fluency Protocol: Teachers in this study were clear that the use of the well-designed protocol increased their confidence in helping their students become more fluent, and student data demonstrated an increase in efficacy. However, teachers had mixed feelings about using whole-class instructional time for the protocol. Given feedback from participant teachers and the lack of significant improvement effects for higher-performing students in this short study, future research should aim to clarify whether the Fluency Protocol is more effective as a targeted small-group intervention than it is as a whole-class practice. However, because the protocol is designed to be simple to train and implement in whole-class instruction, which bore out in this study, future whole-class trials with changes to duration and instrumentation are worth investigating. Those who benefit from the protocol may be revealed to be a broader group, given such changes.

Investigating effects added by the Fluency Protocol over and above a simple Repeated Reading method: The significant positive effect on oral reading fluency for students with lower initial performance shows that something worked. However, teachers tended to attribute this growth to the repeated readings rather than to the full Fluency Protocol, inclusive of the additional literacy and engagement-support components. While the initial design of this study sought to parse the effect of these additional components, sample size limitations precluded this group comparison design. In future research, a comparison should be undertaken of the growth effected by repeated readings alone versus the growth effected by the multicomponent Fluency Protocol. This will require a substantially larger sample size to detect the kind of small effects we saw in this study for the full group of students.

Improving the capture of intervention effects through expanded sample size and refined instrumentation: Instrumentation in future studies may benefit from refinement. Because the target of growth is oral reading fluency, it is worth investigating whether an oral reading measure may better

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capture improvements than a silent cloze-measure approach can capture. An advantage to oral reading fluency assessment is its ability to bring reading prosody into view. It may be enlightening to examine growth effects in reading prosody deriving from either the Fluency Protocol or from simple repeated readings, particularly for students with higher initial reading efficiency. The measure of engagement in this study was not ideally aligned either; future studies should aim to incorporate an engagement measure that explores cognitive engagement more broadly across various subscales of engagement metrics (e.g., processing, persistence, importance, effort) that align more specifically with curricular-based interventions.

Extensions of the Fluency Protocol to additional content areas should certainly be explored. How might a similar simple, fluency-focused protocol be fitted to outcomes of interest in science and social studies classes, for example, where comprehension and knowledge building may also be of great interest to teachers?

References

- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology, 44*(5), 427–445. <https://doi.org/10.1016/j.jsp.2006.04.002>
- Bhattacharya, A. (2020). Syllabic versus morphemic analyses: Teaching multisyllabic word reading to older struggling readers. *Journal of Adolescent & Adult Literacy, 63*(5), 491–497. <https://doi.org/10.1002/jaal.984>
- Christ, T., Chiu, M. M., Rider, S., Kitson, D., Hanser, K., McConnell, E., Dipzinski, R., & Mayernik, H. (2018). Cultural relevance and informal reading inventory performance: African-American primary and middle school students. *Literacy Research and Instruction, 57*(2), 117–134. <https://doi.org/10.1080/19388071.2018.1424274>
- Clark, K. F. (2017). Investigating the effects of culturally relevant texts on African American struggling readers' progress. *Teachers College Record, 119*(5), 1–30. <https://doi.org/10.1177/016146811711900503>
- Clemens, N. H., Simmons, D., Simmons, L. E., Wang, H., & Kwok, O. (2017). The prevalence of reading fluency and vocabulary difficulties among adolescents struggling with reading comprehension. *Journal of Psychoeducational Assessment, 35*(8), 785–798. <https://doi.org/10.1177/0734282916662120>
- Didion, L., & Toste, J. R. (2022). Data mountain: Self-monitoring, goal setting, and positive attributions to enhance the oral reading fluency of elementary students with or at risk for reading disabilities. *Journal of Learning Disabilities, 55*(5), 375–392. <https://doi.org/10.1177/00222194211043482>
- Drake, G., & Walsh, K. (2020). *2020 teacher prep review: Program performance in early reading instruction*. National Council on Teacher Quality. www.nctq.org/publications/2020-Teacher-Prep-Review:-Program-Performance-in-Early-Reading-Instruction
- García, J. R., & Cain, K. (2014). Decoding and reading comprehension: A meta-analysis to identify which reader and assessment characteristics influence the strength of the relationship in English. *Review of Educational Research, 84*(1), 74–111. <https://doi.org/10.3102/0034654313499616>
- Huang, H. (2018). *How do students feel about their schools? WCPSS student survey results: 2017–18. DRA Report No. 18.07*. Wake County Public School System. <http://files.eric.ed.gov/fulltext/ED606980.pdf>
- Kim, J. S., Hemphill, L., Troyer, M., Thomson, J. M., Jones, S. M., LaRusso, M. D., & Donovan, S. (2017). Engaging struggling adolescent readers to improve reading skills. *Reading Research Quarterly, 52*(3), 357–382. <https://doi.org/10.1002/rrq.171>
- Kuhn, M. R., Schwanenflugel, P. J., & Meisinger, E. B. (2010). Aligning theory and assessment of reading fluency: Automaticity, prosody, and definitions of fluency. *Reading Research Quarterly, 45*(2), 230–251. <https://doi.org/10.1598/rrq.45.2.4>
- National Reading Panel (US). (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups*. National Institute of Child Health and Human Development, National Institutes of Health.

Sabatini, J., Weeks, J., O'Reilly, T., Bruce, K., Steinberg, J., & Chao, S. F. (2019). SARA reading components tests, RISE forms: Technical adequacy and test design, 3rd edition. *ETS Research Report Series*, 2019(1), 1–30. <https://doi.org/10.1002/ets2.12269>

Shelton, A., & Wexler, J. (2022). The development of reading comprehension in adolescents with literacy difficulties. In T. W. Farmer, E. Talbott, K. McMaster, D. Lee, & T. C. Aceves (Eds.), *Handbook of special education research* (Vol. I, pp. 272–284). Routledge. <https://doi.org/10.4324/9781003156857-23>

Shin, J., & McMaster, K. (2019). Relations between CBM (oral reading and maze) and reading comprehension on state achievement tests: A meta-analysis. *Journal of School Psychology*, 73, 131–149. <https://doi.org/10.1016/j.jsp.2019.03.005>

Stevens, E. A., Walker, M. A., & Vaughn, S. (2017). The effects of reading fluency interventions on the reading fluency and reading comprehension performance of elementary students with learning disabilities: A synthesis of the research from 2001 to 2014. *Journal of Learning Disabilities*, 50(5), 576–590. <https://doi.org/10.1177/0022219416638028>

Student Achievement Partners. (2022) *Juicy sentence guidance*. [https://achievethecore.org/content/upload/Juicy Sentence Guidance.pdf](https://achievethecore.org/content/upload/Juicy%20Sentence%20Guidance.pdf) (Original work published 2018)

Therrien, W. J. (2004). Fluency and comprehension gains as a result of repeated reading: A meta-analysis. *Remedial and Special Education*, 25(4), 252–261. <https://doi.org/10.1177/07419325040250040801>

Toste, J. R., Capin, P., Vaughn, S., Roberts, G. J., & Kearns, D. M. (2017). Multisyllabic word-reading instruction with and without motivational beliefs training for struggling readers in the upper elementary grades: A pilot investigation. *The Elementary School Journal*, 117(4), 593–615. <https://doi.org/10.1086/691684>

University of Minnesota. (n.d.). *Student Engagement Instrument (SEI)*. <http://checkandconnect.umn.edu/sei/default.html>

Wade-Woolley, L., Wood, C., Chan, J., & Weidman, S. (2022). Prosodic competence as the missing component of reading processes across languages: Theory, evidence and future research. *Scientific Studies of Reading*, 26(2), 165–181. <https://doi.org/10.1080/10888438.2021.1995390>

Appendix A: Fluency Protocol

The following steps must be taken:

1. **Teacher takes presurvey** about fluency teaching practices and student fluency level, including prosody.
2. **Create student buy-in** (after parental notification).
 - a. Define fluency: It is the ability to quickly read a text accurately and with proper expression.
 - b. Explain why fluency is important: If a person struggles to read fluently, they must focus on each word in a text, one at a time. This means the person has less time to focus on the MEANING of the text. Reading is important in every part of life. Reading fluently will make school easier. Reading fluently will prepare a person for whatever they want to do once they finish school. Reading fluently enables them to learn more about our world and be able to fully participate.
 - c. Explain that fluency is a key component in increasing comprehension, but there is no correlation between intelligence and reading fluency.
 - d. Tell students they will be participating in a study to help researchers understand how to help students improve their reading, and to that end, they will be taking a couple of assessments now and then again in a few weeks to help gather some data for a study. In between those assessments, you will work together on a practice called Repeated Reading and some strategies to help them improve their reading fluency.
3. **Students take presurvey (SEI).**
4. **Complete the goal-setting activity found in the SFTP folder online.**
5. **Administer Capti Assess.**
6. **Set up pairs of students for working groups.** Some sessions (independent reading sessions) will require students to be put in pairs. (Note that if there is an uneven number of students, a triad can be formed, but time would need to be added for that group for some sessions.) You should use the Capti Assess data in conjunction with your knowledge of students' reading ability to establish groups. Each pair of students should include one student who has stronger fluency scores and one who could benefit from that student's fluency.
7. **Select passages of focus for the study.** Work with the whole class to select six passages that will be the focus of the fluency work over the next several weeks. You will use a list of summaries, found in the SFTP folder online, rather than have them read all the passages. Students should be encouraged to select passages based on their interests, texts that they feel are relatable. Each student is assigned five votes to cast, with the six most popular passages from the votes being moved forward for repeated reading.
8. **Gather materials needed.**
 - a. Copy of the focus text that will be the subject of the protocol. The teacher will need one copy of each passage to use when they read aloud to the whole class.
 - b. Each student will need two copies of the text, one so they can mark up the text and then later have a clean version to read to their caregivers after completion of Session 5.

9. **Teach mini-lessons**, found in the SFTP folder online, to prepare students for decoding work that occurs during the Fluency Protocol.
 - a. **Affixes**—Lesson will be provided by NWEA for educator to teach.
 - b. **Syllables**—Lesson will be provided by NWEA for educator to teach.
10. **Administer the series of the Fluency Protocol.**
 - a. Preread the passage each week prior to reading to students to ensure the passage can be read fluently, with accuracy and correct pronunciation. One text will be the focus of each application of the protocol, Sessions 1–5.
 - b. Implement Sessions 1–5.
11. After Session 5, the next cycle will use a different previously selected text. **This process will continue** until the full protocol has been administered for six passages.

Note: Any student who transfers in later and does not take the two assessments, does not receive mini-lesson instruction, or is unable to participate starting with the first administration of the protocol should not be included in the data set but can certainly participate in the classroom activities.
12. After the full series of the Fluency Protocol has been administered (all six passages), **complete the project wrap-up.**
 - a. Conduct an informal class discussion regarding the overall experience. Focus on:
 - i. I feel like my reading ability (e.g., did not improve yet/slightly improved/moderately improved/improved a lot) over the course of this study.
 - ii. I think the thing that helped me the most over time was (e.g., being able to vote on what I would read/hearing the passage read aloud many times/learning how to use prefixes, suffixes, and syllables to figure out hard words/tracking which words got easier for me as I practiced/working in pairs on reading aloud/focusing on one sentence/keeping the goals I set for myself in mind/other, and if so, what?).
 - iii. Something interesting I learned from the topics of the passages was _____.
 - b. Administer posttests.
 - i. Give the Capti Assess.
 - ii. Give the postintervention (SEI) survey.
 - c. Conduct a class discussion about the project.
 - i. How much did students' reading fluency improve over the project?
 - ii. What aspect of the project did they find most helpful (e.g., having a voice in passage selection, hearing the passage modeled by the educator, repeated readings, practice on decoding or sentences)?
 - d. Teacher completes the online educator postsurvey.
 - e. Teacher participates in a virtual interview with researchers (not to exceed 45 minutes in length).
13. Two to three months after the final administration has been completed, students will take a third Capti Assess.

Fluency Protocol

The Fluency Protocol consists of five sessions, approximately 20 minutes each, with embedded intervention strategies

To implement this protocol with fidelity and in accordance with research on promoting fluency, ALL sessions should be completed in the order provided. The same text should be used throughout the protocol, only switching to a new text when the protocol begins again.

Fluency Protocol Session Design

Adapted from the Student Achievement Partners (2018) protocol

Length	Learning Activity
Session 1 (Total time: 20 minutes)	
3 minutes	Modeling: Passage is read aloud by the teacher to the whole class, with attention to proper pacing, expression, and accuracy. Students will actively listen and follow along with a copy of text in hand. Tell students your goal for them this week is to be able to read the text fluently to someone outside of school.
6 minutes	Echo Reading: Teacher reads one sentence at a time, with students then reading the sentence aloud, mirroring the teacher's pacing, expression, and accuracy.
11 minutes	Noting Challenging Words: On their own paper copy of text, students circle words that were difficult to read. Have students write the words on sticky notes and put on the board. The educator reads the words aloud, one at a time, pronouncing carefully, and students repeat the words as they are read. Then the educator reads the words again, providing simple definitions aloud. (Note: Some potentially challenging words have been provided for you with each text as a starting point, along with short definitions. If those words are not problematic for students, focus on which words are.)
Teacher only	For Session 1, first, fourth, and sixth administration , please video record the entire session using your phone. (Note: Please do not show the students' faces, for privacy reasons. Instead, focus on your role during the session.)
Session 2 (Total time: 20 minutes)	
3 minutes	Modeling: Same passage from previous day is read aloud by teacher, with attention to proper pacing, expression, and accuracy. Students will actively listen and follow along in the text.
3 minutes	Choral Reading: Teacher and students read the text one time in unison as a whole class.
7 minutes	Independent Reading: In pairs, each student reads aloud the text while their partner monitors for pace, accuracy of words and punctuation, and appropriate expression, and then provides feedback. Students should be allowed to struggle with some words, sounding out if needed, but group partner or teacher should intervene with guidance at points to avoid student frustration.
7 minutes	Decoding Using Affixes: Still in pairs, students will work together to determine which words in the passage have a prefix or suffix. Special attention should be paid to the challenging words identified in Session 1. You may need to remind students of the mini-lesson they had on affixes prior to beginning the Fluency Protocol, redefining what a prefix is and what a suffix is. Students should circle prefixes and suffixes throughout the passage to better understand the variety that exists so they can better identify them as chunks that can be easily read.

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Length	Learning Activity
Session 3 (Total time: 20 minutes)	
3 minutes	Choral Reading: Teacher and students read the text one time in unison as a whole class.
7 minutes	Independent Reading: In pairs, each student reads aloud the text while their partner monitors for pace, accuracy of words and punctuation, and appropriate expression, and then provides feedback. Students should be allowed to struggle with some words, sounding out if needed, but group partner or teacher should intervene with guidance at points to avoid student frustration.
3 minutes	Check for Understanding: In pairs, each student will discuss one text-based question (teacher will select from the questions provided with the passage) to check for understanding of the text that students have been reading.
7 minutes	Decoding Using Syllables and Vowel Sounds: Still in pairs, using some of the prefix/suffix words identified in Session 2, students should underline each vowel that they believe makes a sound. Remind them of the syllable mini-lesson taught prior to starting the Fluency Protocol, noting that every syllable will always have a vowel sound, and that sometimes vowel combinations make a single sound. Ask students to divide the word into syllables. These syllables will also include the prefixes or suffixes. Next, they should read each syllable independently from others. Then, they should blend the syllables together to sound out the whole word. Students should discuss the meaning of the root word and how it changes based on the addition of the prefix or suffix.
Session 4 (Total time: 20 minutes)	
3 minutes	Choral Reading: Teacher and students read the text one time in unison as a whole class.
7 minutes	Independent Reading: In pairs, each student reads aloud the text while their partner monitors for pace, accuracy of words and punctuation, and appropriate expression, and then provides feedback. Students should be allowed to struggle with some words, sounding out if needed, but group partner or teacher should intervene with guidance at points to avoid student frustration.
10 minutes	Juicy Sentence Analysis: Whole class instruction—To help students better comprehend the meaning of the text, help students dig into one juicy sentence in the text, focusing on sentence structure, word choice, and meaning. Follow the Juicy Sentence Guidance . (Note: A juicy sentence has been provided for you with each text as a suggestion.)
Session 5 (Total time: 20 minutes)	
7 minutes	Independent Reading: Explain to students that this is their final practice session with this particular passage. They will be expected to read the text aloud that evening to their chosen audience (e.g., caregiver, sibling, pet, friend) at home. In pairs, each student reads aloud the text while their partner monitors for pace, accuracy of words and punctuation, and appropriate expression, and then provides feedback. Students should be allowed to struggle with some words, sounding out if needed, but group partner or teacher should intervene with guidance at points to avoid student frustration. Charge them with reading to someone outside of school.

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Length	Learning Activity
13 minutes	Final Feedback and Reflection for This Week: Have students lightly cross through previously troublesome words that are no longer problematic. Next, each student in the pairing should provide oral feedback on overall progress, what step(s) in the protocol seemed most helpful, and what was learned overall about both improving reading and the text itself. (Note: Teacher should post these sentence frames and sample responses in the classroom and read them aloud. Students can reference as needed.) Sentence frames: I feel like my reading of this passage (did not improve yet/slightly improved/moderately improved/improved a lot) this week. I think the thing that helped me the most this week was (hearing the passage read aloud many times/learning how to use prefixes, suffixes, and syllables to figure out hard words/tracking which words got easier for me as I practiced/working in pairs on reading aloud/focusing on one sentence/keeping the goals I set for myself in mind/other, and if so, what?). One thing I learned from reading about the topic this week is _____.

Appendix B:

Reading Reimagined Interview Protocol

Purpose

Our objective is to improve reading fluency outcomes for historically marginalized middle school students who struggle to read. We approached this objective by investigating a method of accelerating an evidence-based fluency intervention.

Research Questions

1. After receiving the Fluency Protocol intervention, is there a significant difference in students' reading fluency scores between pretest, posttest, and delayed/lagged test, as measured by the Capti Assess Reading Efficiency subtest?
2. After receiving the Fluency Protocol intervention, is there a significant difference in students' overall reading scores between pretest, posttest, and delayed/lagged test, as measured by Capti Assess (including these subtests: Word Recognition and Decoding, Vocabulary, Morphology, Sentence Processing, Reading Efficiency, and Reading Comprehension)?
3. Does emergent bilingual status or other demographic characteristics (e.g., socioeconomic status, age of student) moderate students' growth in fluency scores from the pretest to the posttest, as measured by the Capti Assess Reading Efficiency subtest? (In our sample, all but one student in the group of students who scored below the 50th percentile—according to the Capti Assess Reading Efficiency subtest—on the pretest had emergent bilingual status; therefore, we were not able to run this analysis.)
4. After receiving the Fluency Protocol intervention, which includes students selecting passages for engagement, is there a significant difference in students' engagement in learning from pretest to posttest, as measured by the Student Engagement Instrument (SEI)?

Key Interview Areas to Cover That Address Research Questions

- Effects on fluency
- Overall reading
- Student engagement

Interview Questions by Key Areas for Teachers

- Area 1: Effects on fluency
 - How, if at all, have you seen this method of instruction impact students' fluency for your group of students who struggle with reading?*
 - What behaviors did you observe that would serve as evidence of the impact on students?
 - Can you provide an example of a student who has made noteworthy progress in fluency as a result of the fluency protocols?
 - Have you seen this intervention being applied outside intervention time?
- Area 2: Overall reading
 - How did you address any emotional or social needs of students while engaging in Fluency Protocol intervention?
 - How has this intervention impacted students' attitudes toward reading?*

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- Area 3: Student engagement
 - Was student engagement improved by the practice of voting for the passages students would focus on?
 - What makes you believe students were more engaged, demonstrated the same level of engagement as normal, or were less engaged?
 - What major observation have you made of the behavior of your students (e.g., body language and other observable behaviors) that provides evidence of this engagement?
 - Has this intervention impacted students' engagement during reading (outside the intervention time)?
- Additional questions
 - Can you discuss any challenges (if any) you have faced while implementing this intervention and how you have addressed them?
 - Do you plan to continue using this intervention in the future? If so, do you plan to improve and refine this method (and if so, how)?
 - How did this intervention compare to your previous teaching strategies?*
 - How has participating in this study impacted you as a teacher?*
 - In your opinion, was the time spent working on the intervention—taking away from regular instruction time—worth it to both you and your students? Why or why not?

Draft Protocol

- **Interview Opener:** “Hi. My name is Jessica Stamp. I’m happy to be talking with you today. Thank you for taking the time to speak with me. I’m going to ask you a few questions that will help us understand your experience with the Fluency Protocol intervention. Are you comfortable with me recording and transcribing this interview so that I don’t miss anything you share? This should take only between 30 and 45 minutes.”
- **Order of Questions:** Prioritize the most relevant questions from each section. Questions marked with an asterisk have been identified as questions whose answers are of great interest.
- **Interview End:** “Thank you so much for taking the time today! Have a good day!”

Appendix C: Student Goal-Setting Worksheet

This worksheet is not to be submitted, but rather to be retained by educator so student can revisit prior to SEI administered at the end of the study.

Student Name: _____

What is reading fluency?

It is the ability to quickly read a text accurately and with proper expression.

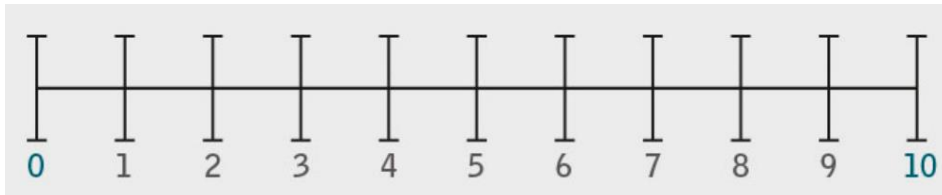
Why is reading fluency important?

If a person struggles to read fluently, they must focus on each word in a text, one at a time. This means the person has less time to focus on the MEANING of the text.

Reading is important in every part of life. Reading fluently will make school easier. Reading fluently will prepare you for whatever you want to do once you finish school. Reading fluently enables you to learn more about our world and be able to fully participate.

Step 1: Assess your own reading fluency.

- A. On a scale from 0 to 10, with 10 being the best, tell me how you feel about your ability to read a text quickly, accurately, and with proper expression. Put a circle around the number that best describes how you would describe your reading fluency.



- B. Explain why you rated yourself the way you did. What are you good at already? What is difficult for you?

Step 2: Brainstorm ideas for short-term and long-term goals.

Short-term goal: What is your goal for the next 10 weeks as you take part in this study meant to help you improve your reading fluency?

Long-term goal: What is your goal for what you want to do after you finish high school?

How will being a fluent reader help you meet your post-high-school goal?

Appendix D:

Mini-Lessons

Affixes Mini-Lesson (15 minutes)

Length	Learning Activity
2 min	Define the new terms: Tell students they will be learning a new strategy to read long words. Specifically, they'll learn more about three words today—affixes, prefixes, and suffixes. Write these words on the board. Have students read each word. Explain that an affix is a part of a word that sticks onto a base word. These word parts, or affixes, carry meaning and can make the meaning of the base words change. An affix at the front of a base word is called a PREFIX. An affix at the end of a base word is called a SUFFIX. Check for student understanding of new terms.
2 min	Model PREFIXES: Pass out the two-sided handout for Common Prefixes and Common Suffixes. Instruct students to bring their attention to the Common Prefixes side of the handout. Tell students the first column is of prefixes by themselves, the second column shows the definition of each prefix, and the third column shows the prefix in example words. Demonstrate the first row, drawing a box around the prefix in the example words. Ask them to repeat after you as you read across the first-row columns. Demonstrate how to break apart the example words into the prefix and the rest of the word and read them part by part. (Note: The handout is not included in the appendices due to copyright restrictions.)
4 min	Practice PREFIXES: Tell students they will work with their partner to read the prefix in the first column, then to box the prefix in the last column, and finally to read the word part by part. Ask them to try it for the next three rows. Once most partners have completed the three rows, have students read chorally with you as you read across the three rows they have completed to check their work. Ask for questions. Then have students complete the page, completing as many as possible until the time is up.
1 min	Review PREFIXES: Review what a prefix is. Read chorally with students through some of the rows that were challenging.
2 min	Model SUFFIXES: Tell students to bring their attention to the Common Suffixes side of the handout. Tell students the first column is of suffixes by themselves, the second column shows the definition of the suffix, and the third column shows the suffix attached to example words. Demonstrate the first row, drawing a box around the suffix in the example words. Ask them to repeat after you as you read across the first-row columns. Demonstrate how to break apart the example words into the suffix and the rest of the word and read them part by part.
3 min	Practice SUFFIXES: Tell students they will work with their partner to read the suffix in the first column, box in the suffix in the last column, and read the word part by part. Have them read chorally with you as you read across the three rows they have completed to check their work. Ask for questions. Then have them complete the page, completing as many as possible until time is up.
1 min	Review SUFFIXES: Review what a suffix is and how it is different from a prefix. Read chorally with students through some of the rows that were challenging. Tell students that they will be working to box prefixes and suffixes in future fluency lessons to help them read longer words with more accuracy.

Syllables Mini-Lesson (15 min)

Length	Learning Activity
1 min	Define the new terms: Tell students they will be learning another strategy for reading longer words today. Specifically, they will learn more about two concepts: syllables and vowels. Write these words on the board. Have students read each chorally three times. Explain that a syllable is a word or part of a word with ONE vowel SOUND. Explain that a vowel sound is a sound that is open (not blocked by your lips, tongue, or teeth) and voiced (your voice box is turned on).
2 min	Model dividing words into syllables: Pass out the handout and call students' attention to List 1. Point to the first word and tell them you will be looking for vowels. If two vowels are together, they usually stick to each other to make one sound and can be underlined together. Underline the vowels in "volcano" as you think aloud with students. Have them copy: <u>vo</u> <u>lca</u> <u>no</u> . Tell them each vowel you underlined will make a separate part of the word. Tell them, "Let's try to figure out some parts we can say together." Think aloud and model, then have students echo: "Vol-can-o . . . vol-ca-no . . . volcano!"
4 min	Practice dividing words into syllables: Have students try the next two words with their partner. Remind them to underline each vowel, and if two vowels are together, they usually stick to each other and make one sound. After most students are finished, have students check work by modeling on the board and reading words chorally with you. Finally, have students complete the list with their partner, then read chorally with you.
1 min	Review dividing words into syllables: Review what to do (look for vowels, underline vowels, break word into parts to sound out, and say the word together). Review any challenging words.
3 min	Model dividing words with affixes into syllables: Now call students' attention to List 2. Tell students they will now combine what they learned from the syllables lesson today and the previous affix lesson to read longer words more efficiently. Ask students to recall the meaning of <i>affix</i> , <i>prefix</i> , and <i>suffix</i> . Then remind students to use their list to read down the prefix and suffix columns to refresh their memories. Finally, remind students to box in any affixes they find in words. Model this on the first word in List 2, "effortless," by boxing in the suffix <i>-ish</i> . Then remind students to underline vowels that are left (<u>eff</u> ort), divide the word into parts to read, and read it all together.
3 min	Practice dividing words with affixes into syllables: Have students try the next two words with their partner. Remind them to box any affixes, then underline each vowel; and if two vowels are together, they usually stick to each other and make one sound. After most students are finished, have students check work by modeling on the board and reading words chorally with you. Finally, have students complete the list with their partner, then read chorally with you.
1 min	Review dividing words with affixes into syllables: Review what to do (box in affixes, underline leftover vowels, break word into parts to sound out, and say the word together). Review any challenging words.

HANDOUT FOR SYLLABLES MINI-LESSON

List 1

volcano

rainstorm

binocular

finger nail

evaporate

establish

volume

dandelion

irregular

avocado

List 2

effortless

execution

accountability

discontinuation

unimaginable

organism

disinfectant

indecisive

persecution

disqualification

Appendix E:

Summary Document for Passage Voting

As part of your work, you get to have a say in which passages you will focus on. Put an X next to the 5 passages you would like to read. Then all student votes will be tallied, and the 6 passages with the highest number of votes will be the passages used to improve your reading fluency.

Passage Title	Author	Description	Your Vote (CHOOSE ONLY 5)
God Is God Because He Remembers	Elie Wiesel	A Jewish survivor of the Holocaust explains why he chooses to share his extremely painful experience with others.	
Long Walk to Freedom	Nelson Mandela	A leader for Black equality in South Africa, Mandela explains how he came to lead the fight and what is left to do.	
The Elephant and the Crocodile	H. Berkeley Score	This story is a fable that teaches a lesson about how each of us is special in our own way.	
The Man, the Boy, and the Donkey	Aesop	This story is a fable that teaches a lesson about trying to please everyone.	
Try Something New for 30 Days	Matt Cutts	The author explains how his life changed when he experimented with new habits.	
Robots	Josh Gregory	This passage provides information about robots.	
The Ink-Keeper's Apprentice	Allen Say	In this fictional story, a Japanese teenager describes learning how to draw cartoons.	
Photos from a Storm Chaser	Camille Seaman	A Shinnecock Indian woman explains how storms make her feel connected to nature and the larger universe.	
National Address to America's Schoolchildren	Barack Obama	The first Black president of the United States explains his view of each student's role in education.	
Why Celebrate Juneteenth?	Resilience and Racial Equity, City of Boston	This article explains the origin and meaning of Juneteenth, as it relates to Black culture.	
TikTok has changed music—and the industry is hustling to catch up	Mia Venkat	This article explains how TikTok has helped some people get their music in front of others without having to sign a contract with a record company.	
What It's Like to Be the Child of Immigrants	Michael Rain	The author relates his experience growing up in the United States with parents who had moved to the US from Ghana.	
The Creativity and Community behind Fanfiction	Cecilia Aragon	A Latina woman describes how writing fanfiction can create a sense of belonging and can build skills and confidence in writing.	

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Passage Title	Author	Description	Your Vote (CHOOSE ONLY 5)
The Comet	W. E. B. Du Bois	This fictional story, written by an influential Black author and activist, describes events that happen the day a comet is expected to be seen from Earth.	
At the Head of Her Class, and Homeless	National Public Radio (NPR) Staff	This interview introduces Rashema Melson, a teenager who earned a full scholarship to college even as she fought the challenges of homelessness.	
Memories of a Former Migrant Worker	Felix Contreras	A Latino man explains what it was like growing up as a child who worked in the fields, moving to follow crops to harvest.	
Remarks by the First Lady at International Women's Day Reception	Michelle Obama	Michelle Obama, the wife of the first Black president of the United States, celebrates progress made by women in the United States and describes areas in which progress still needs to be made.	
How You See Yourself	The JED Foundation	This article explains how humans form what they believe about themselves and why these beliefs are important.	

Appendix F:

NWEA Internal Fidelity Rubric for Reading Reimagined Study—Fluency Protocol

Educator name: _____ District: _____

Grade level: _____ Checkpoint (1, 4, or 6): _____

NWEA evaluator initials: _____

Session 1 will be the session recorded and rated for each of the checkpoints.

Criteria	Rating (yes or no)	Comment
MODELING		
During Modeling, does educator follow the timing outlined (i.e., 3 minutes) plus or minus 30 seconds?		
During Modeling, does educator read the passage with proper pacing, slow enough for students to understand and stay engaged?		
During Modeling, does the educator read the passage with proper expression, modeling pitch changes and pauses related to punctuation?		
During Modeling, does the educator read the passage with accuracy, pronouncing the words correctly 100% of the time?		
ECHO READING		
During Echo Reading, does educator follow the timing outlined (i.e., 6 minutes) plus or minus 1 minute?		
During Echo Reading, does educator read the passage with proper pacing, slow enough for students to understand and stay engaged?		
During Echo Reading, does the educator read the passage with proper expression, modeling pitch changes and pauses related to punctuation?		

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During Echo Reading, does the educator read the passage with accuracy, pronouncing the words correctly 100% of the time?		
During Echo Reading, does the educator allow students sufficient time to repeat the sentences back, one at a time?		
INTERVENTION		
During Noting Challenging Words, does educator ensure all students are actively identifying words that are challenging for them and then posting them on the board?		
During Noting Challenging Words, does educator pronounce the posted words loudly and slowly with the class so they can hear the words pronounced accurately?		
During Noting Challenging Words, does educator provide simple, easily understood definitions for words read aloud?		
GENERAL		
Were all three components performed in the order shown in the protocol (Modeling followed by Echo Reading followed by Noting Challenging Words)?		
Did the educator refrain from offering additional interventions or guidance during the session (e.g., did educator focus only on pronunciation and definition rather than working on decoding skills)?		
	Overall rating: X/14 (Teacher must have “yes” in 12 out of 14 of the ratings to ensure 85% fidelity.)	Final comments, if any:

If the fidelity rating is less than 85%, please notify Laura Hansen so she can set up additional training for the educator.

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