

IMPLEMENTATION OF A PARENT-LED COMBINED GROWTH-MINDSET AND HOME LITERACY INTERVENTION: A PILOT STUDY

by

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This pilot study examined the implementation feasibility and preliminary effectiveness of a combined growth-mindset and literacy intervention delivered in the home by parents and guardians. The study was completed in two parts: Pilot Study 1 was completed with one parent. Feedback was gathered and the program was modified accordingly for Pilot Study 2. During the second study, an additional 9 elementary school students and their parents/guardians participated. Parents administered reading interventions from the PASTEL (Parents and Schools Together to Enhance Learning) guidebook and mindset interventions from PERTS (Project for Education Research that Scales). Prior to implementation, parents attended two group meetings during which they were provided materials and coached on how to use them. Qualitative data gathered from parents found that all parents reported intervention materials to be easy to use, fun for their children, and to require a reasonable time commitment. Additionally, pre- and post-test data assessed parent and child mindset, parent and child self-efficacy, child academic motivation, and child reading ability. A statistically significant increase occurred across all child-reported psychosocial outcomes, but no other significant pre-post changes occurred. Limitations and further directions are discussed in detail.

**IMPLEMENTATION OF A PARENT-LED COMBINED GROWTH-MINDSET AND
HOME LITERACY INTERVENTION: A PILOT STUDY**

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TABLE OF CONTENTS

LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER I: REVIEW OF LITERATURE AND STUDY PURPOSE.....	1
Introduction of the Problem.....	1
Review of Reading Research	4
<i>Progress Monitoring</i>	5
<i>Differentiated Instruction and Intervention</i>	6
<i>Home Literacy Environment</i>	8
PASTEL Guidebook for Parents.....	10
A Model Linking Mindset to Reading Improvement	11
<i>Academic Self-Efficacy</i>	12
<i>Intrinsic Motivation to Read</i>	14
Mindset Research.....	15
<i>First Era of (Early) Mindset Research</i>	15
<i>Malleability of Intelligence</i>	16
<i>Mindsets and Academic Achievement</i>	17
<i>Intervention Research (The Second Era)</i>	18
Individual Interventions	19
Key Mindset Intervention Components	21
Parent Intervention.....	21
Reading Mindset Intervention.....	22
The Current Study	23
Research Hypotheses	24

CHAPTER II: METHOD	26
Pilot Study 1 Procedures	26
<i>Recruitment and Participant</i>	<i>26</i>
<i>Intervention Details</i>	<i>27</i>
Pilot Study 2 Procedures	28
<i>Recruitment and Participants</i>	<i>28</i>
<i>Meeting Content</i>	<i>29</i>
<i>Individual Activity Selection</i>	<i>32</i>
<i>Pilot Study 2 School-Based Reading Intervention</i>	<i>34</i>
Materials and Measures	34
<i>Parent Measures</i>	<i>35</i>
<i>Child Measures</i>	<i>36</i>
<i>Adaptations</i>	<i>37</i>
<i>Informal Measures</i>	<i>38</i>
Pilot Study 2 Data Collection	38
Pilot Study 2 Data Analysis	39
CHAPTER III: RESULTS.....	40
Pilot Study 1	40
Pilot Study 2 Implementation Findings	41
<i>Activity Tracker</i>	<i>41</i>
<i>Informal Survey Results</i>	<i>41</i>
Pilot Study 2 Pre-Post Data.....	43
<i>Reading Measure</i>	<i>44</i>
<i>Psychosocial Child Measures</i>	<i>47</i>
<i>Psychosocial Parent Measures</i>	<i>48</i>

CHAPTER IV: DISCUSSION.....	50
Implementation Feasibility	50
Parent and Guardian Perception of Feasibility	51
Student Reading Change.....	52
Student Psychosocial Measures	54
Parent/Guardian Psychosocial Measures	55
Time/Dosage Impact.....	56
Evaluation of the Proposed Model.....	56
Limitations	57
Future Directions	58
Conclusions	61
REFERENCES.....	62
APPENDIX A: Pilot Study 1 Informed Consent Form	72
APPENDIX B: Pilot Study 2 Informed Consent Form	73
APPENDIX C: Pilot Study 1 Recruitment Flyer	74
APPENDIX D: Pilot Study 2 Recruitment Flyer.....	75
APPENDIX E: Pastel Group Parent Information Form	76
APPENDIX F: Pastel Group Helpful Resources Handout	77
APPENDIX G: Post Test Instructions Form	78
APPENDIX H: Pastel Parent Group Survey Questions	79
APPENDIX I: Pastel Guidebook Activity Tracker	82
APPENDIX J: Pastel Guidebook Star Chart	84
APPENDIX K: Mindsetkit Activity Handout.....	86
APPENDIX L: Grab Bag ABC Intervention from Pastel Guidebook.....	87
APPENDIX M: Spin-A-Word Intervention from Pastel Guidebook	89

APPENDIX N: Echo Me Intervention from Pastel Guidebook.....	92
APPENDIX O: Adapted Parent Mindset Scale	93
APPENDIX P: Parental Self-Efficacy for Helping the Child Succeed in School Scale	94
APPENDIX Q: Adapted Child Mindset Scale.....	95
APPENDIX R: Academic Motivation Scale	96
APPENDIX S: Self-Efficacy Subscale of The Motivational and Self-Regulated Learning Questionnaire.....	97
APPENDIX T: IRB Exemption Certification Letter	98

LIST OF TABLES

1. NCES Data on Reading Proficiency Across Years, Grades, & Poverty Measures. ..	2
2. Pilot Study 2 Participant Demographic Data	30
3. Results of the Shapiro-Wilk Normality Test Across Variables	45
4. DIBELS Next Composite Pre- and Post-test Data.....	47
5. DIBELS Next NWF-WRC Pre- and Post-test Data.....	47
6. DIBELS Next ORF Pre- and Post-test Data	48
7. Results of the Paired T-tests for All Outcome Measures.....	49

LIST OF FIGURES

1. Proposed Theoretical Framework	13
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CHAPTER I: REVIEW OF LITERATURE AND STUDY PURPOSE

Introduction of the Problem

In modern society, the ability to read is crucial. When it comes to navigating our surroundings, searching for medicine to treat our ailments, purchasing a nutritious selection of foods, and just about everything else we must do to survive, some level of reading ability is essential. Reading proficiency is even more important regarding education: it is arguably the most important academic skill, as it is a prerequisite for acquiring content knowledge in all subjects. Up until the third grade, students are primarily focused on learning to read and mastering other fundamental academic skills. Once students reach the fourth grade, they often encounter the expectation that they can read independently to learn about various topics; the primary focus shifts to reading to learn (Gibson et al., 2011). Failure to acquire proficiency in basic reading skills during the primary grades can cause a decrease in students' motivation to learn and academic self-confidence. In addition, it makes it unlikely that they will become successful students in later grades without intensive time and intervention dedicated to mastering reading skills (Gibson et al., 2011; Armbruster et al., 2001; The Annie E. Casey Foundation, 2013).

The National Center for Education Statistics (NCES) collects and analyzes data on several educational variables and their related outcomes. According to their data, in 2022 63% of fourth-grade students were performing at or above the basic level in reading, and only 33% were in the proficient level. The issue is present in older cohorts as well, with 70% of eighth-grade students performing at or above the basic level, and only 31% at the proficient level. (National Center for Education Statistics, 2022). The NCES provides specific and detailed definitions of what constitutes a basic, proficient, or advanced reader across various grade levels and subjects.

In general terms, the proficient level represents solid academic progress, while the basic level denotes partial mastery of the prerequisite knowledge and skills that are fundamental to the skills required to be considered proficient. (National Center for Education Statistics, 2009).

Table 1

NCES Data on Reading Proficiency Across Years, Grades, and Poverty Measures.

	2005 At/Above Basic	2005 At/Above Proficient	2022 At/Above Basic	2022 At/Above Proficient
4th Grade				
Free/Reduced Lunch	46%	16%	48%	19%
Not Eligible	77%	42%	76%	46%
All students	64%	31%	63%	33%
8th Grade				
Free/Reduced Lunch	57%	15%	58%	19%
Not Eligible	81%	39%	79%	41%
All Students	73%	31%	70%	31%

Note. Data pulled from the National Center for Education Statistics.

As highlighted in Table 1, the rates of reading proficiency have not changed significantly over the past decade. Additionally, a smaller percentage of students with family incomes low enough to qualify for free or reduced lunch meet the criteria to be considered basic or proficient readers compared to their peers with higher family incomes. (National Center for Educational Statistics, 2022). Research has also suggested that students in racial minorities or those with lower SES have lower rates of reading proficiency compared to their peers in the racial majority or high SES homes (The Annie. E Casey Foundation, 2013).

As previously mentioned, it is important for children to develop the ability to read fluently by the end of third grade (Hernandez, 2011), as the expectation is that they can read independently to review curriculum material starting around fourth grade, and reading curriculum shifts its focus to higher-order skills such as comprehension (Castles et al., 2018). Earlier research on a phenomenon referred to as the Matthew Effect suggested that poor readers begin to fall behind their peers at an increasing rate as they progress through their education (Gonzales, 2019). Other research has cast doubt on our ability to empirically assess this phenomenon and suggested that the gap does not necessarily widen as much as previously believed. However, it also suggests that poor readers still are not improving at a rate fast enough to become proficient readers (Protopapas et al., 2011; 2016).

Struggling in reading during the elementary years is a predictor of poor outcomes in adolescence and adulthood. According to the results of a longitudinal study of approximately 4,000 students, below-basic readers comprised about 33% of all students, but they comprised 60% of those who either drop out or fail to graduate on time. This study also found that students not reading proficiently by the third grade are four times more likely to leave school without a diploma compared to their peers who are reading proficiently (Hernandez, 2011).

Students who drop out of school can suffer substantial consequences that affect several aspects of their lives. Individuals who drop out of high school are the least educated workers in the labor market and therefore have poorer job prospects compared to workers with more education, meaning they are less likely to find jobs or receive livable wages when employed. As a result, they are more likely to live in poverty and require public assistance throughout their lifetimes. In addition to the economic consequences, children who dropout are also more likely to engage in crime, have poorer overall health, shorter life spans, and are less likely to vote and

participate in other community activities compared to their peers with at least a high school education (Rumberger, 2011). These outcomes show that the negative effects of reading failure and underachievement can permeate throughout one's lifetime.

There are multiple courses of action that can be taken to decrease levels of poverty and reduce the likelihood that students will drop out of school. Addressing reading underachievement is relevant and worthwhile because improvements in reading can affect many other academic (Armbuster et al., 2001) and socioeconomic outcomes (Hernandez, 2011; Rumberger, 2011).

Review of Reading Research

Regardless of what level of difficulty a student has with reading, some of the most important variables for determining future proficiency are the quality of reading instructors and interventions to which students have access. Previous studies have shown that school districts with access to more qualified teachers (as measured by levels of education, years of experience, and scores on competency tests) are better able to generate reading progress in their students (Biddle & Berliner, 2002).

A collection of research reviewed by the National Reading Panel has suggested that there are five essential components of reading (The Big 5) that instructors and interventionists should target: phonemic awareness, phonics, reading fluency, vocabulary, and reading comprehension (Armbuster et al., 2001). The Simple View of Reading (SVR) is another concise overview of reading development. The SVR acknowledges that reading is a complex activity but posits that it can be efficiently represented as two interdependent processes: Word recognition (decoding) and language comprehension. Word recognition is the ability to decode and read isolated words, and language comprehension is the ability to make sense of the language we hear and read (Gough & Tunmer, 1986). Both the SVR and the findings of the National Reading Panel delineate reading

comprehension as the ultimate goal of reading; however, both models suggest that other reading or linguistic abilities must be developed first in order to achieve reading comprehension (Armbruster et al., 2001; Nation, 2019). Indeed, a more recent synthesis of the available reading research found that comprehension interventions and strategies are unlikely to produce maximum benefits before children have mastered the basic alphabetic decoding skills (Castles et al., 2018).

Most recently, the Active View of Reading has been presented as an extension of the SVR that incorporates updated research findings (Duke & Cartwright, 2021). The authors highlight the overlap between decoding and language comprehension, and stress that many active self-regulatory processes and executive functioning skills impact reading development. They also stressed that reading difficulties can have causes not central to decoding or language comprehension, such as cultural experiences and representation in curriculum materials. For example, students who are rarely provided to opportunity to read text reflecting their cultural backgrounds may experience the reading process differently than their well-represented peers (Duke & Cartwright, 2021).

Progress Monitoring

The research findings and recommendations from the National Reading Panel and Castles et al. highlight the importance of progress monitoring tools for instructional planning. Digital progress monitoring tools can help schools efficiently and regularly collect progress monitoring data from all students on a variety of reading skills. Educators can then use this information to select and adapt interventions to the needs of individual students. The *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS) is a reading progress monitoring system that was first made available in 2007. The program was most recently revised in 2018 to incorporate new

research on curriculum-based measurement. Both traditional paper/pencil and electronic options are available. DIBELS is currently in its 8th edition. It contains a set of measures that assess the reading skills of students from grades K – 8. It contains measures for a variety of foundational reading skills, and generates an overall composite score based on students’ performance across these areas (University of Oregon, 2020). These measures include Letter Naming Fluency (LNF), Phonemic Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), Word Reading Fluency (WRF), Oral Reading Fluency (ORF), and Maze. LNF measures letter fluency; students are presented with a random series of upper and lowercase letters and asked to identify as many as they can within one minute. PSF measures phonemic awareness. The examiner says a whole word and students are asked to identify all the sounds included in the word. WRF measures word reading fluency. Students are given a page of real words and asked to read as many as they can within a time limit. ORF measures reading fluency. Students are asked to read a passage within a time limit while the examiner notes all errors that are made. Maze measures reading comprehension. Students are presented with a passage that has every seventh word deleted and replaced with three options; they are asked to identify the correct word to fill the blank (University of Oregon, 2020).

Differentiated Instruction and Intervention

The mCLASS system is a reading assessment and intervention suite for educators and students. The program can be used to collect DIBELS progress monitoring data, and to provide supplemental instruction and curriculum tools that teachers can incorporate into their whole-group instruction. It also groups students based on the most pertinent skill(s) for intervention according to the most recent progress monitoring data from DIBELS, so that teachers can use

that data to form their small groups and select supplemental interventions when needed (Amplify Education, 2015; 2021).

The *Boost Reading* program by mCLASS (formerly titled *Amplify Reading*) is one of the available intervention options. It is a digital reading program for grades K – 8 that personalizes instruction for students based on available progress monitoring data related to a variety of foundational reading skills. *Boost Reading* focuses on a variety of specific foundational reading skills related to decoding (e.g., recognizing rhyming words, blending and segmenting compound words, identifying individual letter sounds). *Boost Reading* uses intervention periods of 10 school days; the system will reassess progress monitoring data to determine if students should continue with the current interventions, or if changes are needed at the end of each 10-day period (Amplify Education, 2015; 2021).

During the 2020-2021 school year, a quasi-experimental study was completed with 129,981 students in grades K – 5 from schools across the United States. Students who attended the included schools and completed at least 15 hours of *Boost Reading* interventions throughout the year comprised the treatment group. To generate the control group, the researchers utilized propensity-score matching to identify students who came from similar schools and had demographics and achievement scores similar to those in the treatment group. The results revealed that *Boost Reading* had statistically significant effects on all DIBELS 8th Edition subtests in all included grade levels. The effects were especially large for kindergarten and first grade students, ranging from .34 to .55 (Cohen's *d*), while effects in grades 2–5 ranged from .07 to .31 (Amplify Reading, 2023). It is important to note that this research was released by the company; replication from independent researchers will be critical in increasing confidence in the effectiveness of this program.

Systems such as *Boost Reading* have shown promise for providing supplemental reading instruction and intervention in the school setting that is associated with improvement on targeted progress monitoring measures (e.g., ORF, Maze). The home literacy environment is another area that has significant implications for students' reading abilities and is ripe for intervention.

Home Literacy Environment

The home literacy environment consists of multifaceted literacy activities, materials, and attitudes that teach children how to use and value literacy. Examples include how often a child is read to, takes trips to a library, computer and internet access, and the number of books in the home. Composites and indices of many of these home literacy activities have been significant predictors of important reading skills such as decoding and early language skills (Tichnor-Wagner et al., 2016).

It seems plausible that improving the home literacy environment would have an indirect positive effect on student's interest in reading and subsequent reading skills, but recent research has suggested that the link between home literacy environments and reading proficiency may be correlational in nature. The observed effects may result from other variables such as masked genetic effects, (van Bergen et al., 2017), maternal literacy beliefs (Weigel et al., 2006), and maternal reading ability (Johnson et al., 2008).

The study by van Bergen et al. suggested that the home literacy environment overall may not have an independent effect on improving reading proficiency, but it did find that the number of books in the home seems to have a true environmental effect on reading ability. These findings suggest that variables such as maternal literacy beliefs (Weigel et al., 2006) mediate the effect of the home literacy environment on reading, highlighting the importance of using additional strategies, such as behavioral tactics or interventions aimed at increasing the

frequency at which reading occurs in the home (i.e., simply having more books in the home does not necessarily mean more reading will occur).

The Ecological Systems Theory of development proposed by Urie Bronfenbrenner posits that intervening with parents will indirectly impact their children. According to this theory, development occurs through a complex interaction of multiple environmental systems. While the entirety of the model is beyond the scope of this paper, the microsystem, which consists of individuals who have proximity to the child on a regular basis (e.g., their parents, peers, teachers, and other school members), is relevant. Relationships between the microsystem are believed to be bidirectional, that is both the parent and child's behaviors affect one another (Shelton, 2018).

Access to quality reading instruction is instrumental in ensuring the appropriate development of reading skills (Armbruster et al., 2001), but the school is only one component of the microsystem (Shelton, 2018). Many schools encourage parents to read more with their children at home, but parent's self-efficacy related to improving their child's reading skills can vary greatly, and some may need specific guidelines or assistance to be able to read effectively with their children (Bhattacharya, 2010). Interventions directed at changing the way and frequency with which parents read with their children would be a more comprehensive approach that could boost reading development for more students.

Household socio-economic status (SES) also relates to the reading development of children within the household. The differences in rates of proficiency based on markers of SES is no surprise, as many previous studies have found an association between poverty and reading underachievement (Bradley et al., 2001; Guo, 1998; Parcel & Dufur, 2001). In addition to difficulties acquiring educational materials, such as books and other elements of the home literacy environment, economic hardship can lead to higher levels of stress and strife that

interfere with a parent's ability to provide cognitive stimulation and emotional support to their children, which directly and indirectly impacts their reading development (Bhattacharya, 2010).

PASTEL Guidebook for Parents

Many initiatives and programs focused on the home literacy environment emphasize the number of books in the home or the use of technology that mediates access to literacy activities. The *Parents and Schools Together to Enhance Learning* (PASTEL) guidebook takes a different approach to bolstering the home literacy environment. While reading books together in the home is one of the options highlighted in the guidebook, it also provides activities focused on developing emergent literacy skills such as letter/sound identification and phonological awareness (Begeny et al., 2018). Previous research reviews have suggested that home literacy activities can support the development of various reading skills including phonological awareness, letter knowledge, print concepts, and vocabulary (Evans & Shaw, 2008).

The PASTEL guidebook includes more than 60 fun and easy to complete literacy activities that parents, and other stakeholders, can use to support students' reading development in school, home, and community settings. This guidebook is freely available to print, and the developers also provide a low-cost physical copy (Begeny et al., 2018). Aside from general items like pencils, paper, and printable worksheets, no additional materials are needed to implement most activities. These elements may help make these activities feasible for schools and families with limited financial and workforce resources to access and implement.

The PASTEL guidebook was developed by a group of six professionals with varying experience in the fields of school psychology and education. They conducted a thorough review of the literature to identify evidence-based practice that support emerging and early literacy and used this information to create pilot forms of the PASTEL activities. Each activity was

subsequently tested with multiple parents, teachers, and community volunteers in a range of settings. Based on careful observation of and feedback from these pilot testers, each activity was reviewed, updated, and retested. This process was repeated until each activity was deemed to be a) feasible and desirable for parents to use, b) have evidence that it could be used accurately by nonprofessionals, c) be fun and engaging for many children, d) address an important component of early language or literacy, and e) have the potential to support children's learning in that area. This same process was used to review the demonstration videos associated with each activity (Begeny et al., 2018).

The developers also noted that the PASTEL development process included some experimental research studies to examine the program and its potential benefits to children, parents, and teachers. They noted that their initial pilot studies indicated positive effects on reading abilities, but that research is continuing to be conducted to examine its effectiveness (Begeny et al., 2018). The PASTEL guidebook and website do not provide links or recommendations for accessing the details of the pilot studies, and a literature review was unable to identify them. It is also important to note that while the information provided in the guidebook is promising, a literature review was unable to identify any peer-reviewed articles assessing the effectiveness of this program at this time. Replication and extension will be key in evaluating the effectiveness of this program in addressing reading underachievement.

A Model Linking Mindset to Reading Improvement

Mindset research, which is also referred to as implicit theories of intelligence, was pioneered by Carol Dweck more than 30 years ago (Dweck & Reppucci, 1973). Motivated by the learned helplessness research being conducted near the advent of the cognitive revolution, Dweck set out to integrate this concept with the emerging research on attribution theory in

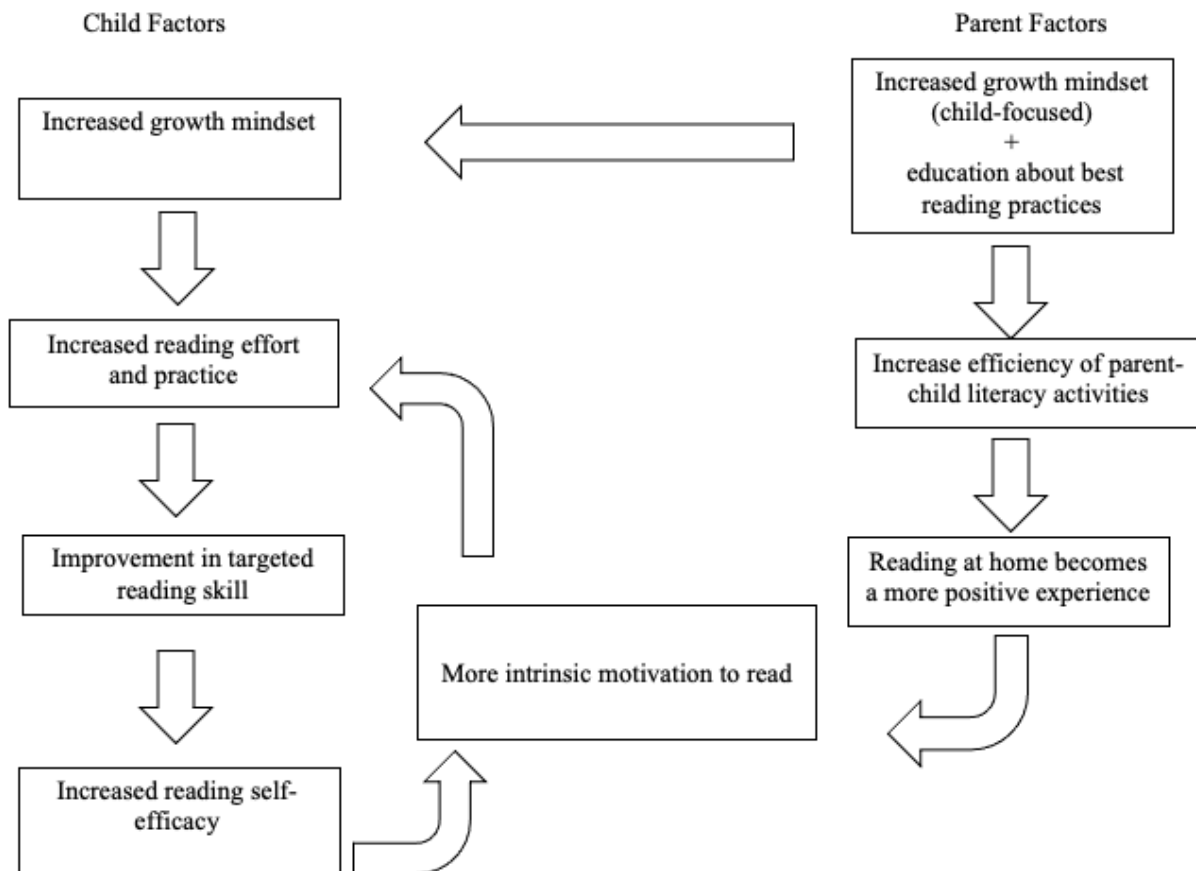
humans. Attribution theory posits that individuals attempt to identify explanations for their lived and observed experiences, and Dweck theorized that these perceptions can impact the way people respond to their environment (Dweck & Yeager, 2019).

Based on a review of the research and related concepts, I suggest a framework for how mindset and related factors may impact student's reading development when paired with evidence-based targeted reading intervention(s). Before explaining this framework, it is important to differentiate between similar key terms that are utilized within it. Mindset refers to one's beliefs regarding their potential to improve with sufficient practice, while self-efficacy refers to one's beliefs about their ability to perform a task (Bandura & NIMH, 1986; Dweck & Yeager, 2019). Another related concept is intrinsic motivation, being motivated to engage in a behavior due to internal rewards (Ryan & Deci, 2017). The model represented in Figure 1 posits how these factors work together to influence response to a reading intervention.

Academic Self-Efficacy

The idea of self-efficacy was pioneered by Albert Bandura, who defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura & NIMH, 1986, p. 391). Additional research has shown that self-efficacy beliefs are related to a variety of motivational and behavioral outcomes (Bandura, 1997).

Figure 1. Proposed Theoretical Framework



Academic self-efficacy is simply a student's beliefs about their academic abilities. Bandura (1997) argued that interpretations of one's own performance (i.e., mastery experience) typically have the most significant impact on self-efficacy. When completing difficult tasks, such as reading activities, actions that are perceived as successful (e.g., reading a paragraph with ease) will often raise self-efficacy, while those perceived as failure (e.g., difficulty reading multiple words in a passage) can lower it.

Bandura also noted three additional mechanisms implicated in the formation of self-efficacy beliefs: vicarious experience (e.g., observations of others), social persuasions (e.g., feedback from teachers and parents), and physiological and emotional states (e.g., amount of stress experienced when completing tasks) (Bandura, 1997). One study examined multiple sources of self-efficacy and found that social persuasions and mean classroom-level self-efficacy predicted academic self-efficacy, (Joët et al., 2011) which may suggest interventions focused on this or related constructs may be particularly effective when implemented in a group format.

Intrinsic Motivation to Read

Self-determination theory primarily examines the social conditions that facilitate or prevent human flourishing. It inquires into intrinsic and extrinsic factors that facilitate motivation, social integration, and well-being. There is a breadth of literature and ideas associated with this theory (Ryan & Deci, 2017), but one that is of particular interest to this study is intrinsic motivation.

Intrinsic motivation is simply when internal rewards motivate us to engage in a behavior. For example, if a student perceives reading to be a fun activity, they will likely be intrinsically motivated to read. Self-determination theory suggests intrinsic motivation plays a crucial role in enhancing the quality of engagement, and consequentially performance and learning (Ryan & Deci, 2017). In other words, the relationship between intrinsic motivation, engagement, and performance may be multidirectional.

Mindset interventions focus on teaching individuals that their abilities have the potential to be improved. When implemented correctly and paired with interventions or supports that help students improve their ability, mindset interventions have the potential to increase student's academic self-efficacy and intrinsic motivation which, in turn, may cause them to seek out more

reading practice and challenges (Dweck & Yeager, 2019). A more detailed overview of the mindset literature is presented below.

Mindset Research

As aforementioned, mindset theory was created by Carol Dweck. In her first research project synthesizing these ideas she found what she was expecting: children's attributions (explanations) for their failure on presented tasks predicted whether they would persist through setbacks or promptly give up (Dweck & Reppucci, 1973). Still curious as to why the attributions and reactions of students was so variable, she extended her research and worked on building the foundation of achievement goal theory. She proposed that there are two primary goals set related to achievement: performance goals, in which individuals aim to prove or demonstrate the abilities they currently possess, and learning goals, in which individuals seek to improve their ability. She set up an additional study to assess this area further and found that framing activities with learning goals as opposed to performance goals caused students to engage in more challenge seeking behaviors and work to learn more skills (Elliot & Dweck, 1988). However, despite this increased knowledge the following question remained: *why* do some students prioritize showing ability while others prioritize improving it, even when they possess similar ability? This question eventually evolved into the first era of mindset research summarized below (Dweck & Yeager, 2019; Weiner & Kukla, 1970).

First Era of (Early) Mindset Research

The first era of mindset research began with a shift towards examining individual's differing views of ability, which Dweck termed the "implicit theories of intelligence." This nomenclature was selected to represent the idea that people hold falsifiable ideas about their abilities (theories) that they are often unaware of (implicit). The initial dichotomy was between

incremental and entity theories, but this was later changed to growth and fixed mindsets to reduce jargon and make the ideas more accessible (Dweck & Yeager, 2019).

Individuals with a growth mindset believe that they can improve and get better with practice, while those with a fixed mindset believe that their abilities are fixed and unchangeable. Though Dweck theorized that mindsets can impact a range of abilities, most of the mindset research is focused specifically on intelligence (Yeager & Dweck, 2020), which appears to be a predictor of important long-term outcomes such as life expectancy (Calvin et al., 2017), social mobility (Staff et al., 2017), and health (Wrulich et al., 2014) later in life.

Dweck and her colleagues argued that these mindsets dictate individual's meaning systems, which have implications for their motivation and achievement. One particularly relevant aspect of meaning systems are individual's effort beliefs. Those with a fixed mindset more often seek to prove their ability as opposed to improving it and perceive high effort as an indication that they have low ability as opposed to perceiving it as a positive indication of hard work and effort (Dweck & Yeager, 2019). Additional studies have suggested that individuals with a fixed mindset are more likely to avoid challenges while those with a growth mindset are more likely to seek and accept them. One proposed explanation for this finding is that individuals with a fixed mindset have a greater desire to preserve their self-perception of having high ability, while those with a growth mindset have a greater desire to improve their ability (Hong et al., 1999).

Malleability of Intelligence

Mindset theory itself does not seek to address if intelligence is truly malleable, but rather asserts that an individual's beliefs about whether they can improve it has real life implications for their growth and performance (Dweck & Yeager, 2019). It is important to also note that

research in ancillary fields suggests that intelligence is, in fact, malleable (Sauce & Matzel, 2018).

Contrary to other phenomenon such as body weight that tend to become less heritable over time, intelligence appears to follow the opposite trend. Around the ages of 4-5, the heritability of intelligence is estimated to be only about 0.22. By age 16, this estimate increases drastically to 0.62. This estimate gradually increases as we continue to age, and by 50 years old heritability estimates range from a staggering 0.80 – 0.90. It is estimated that the change in heritability with age suggests that an underlying role of gene-environment interaction in forming individual's IQs, suggesting that intelligence is high in both heritability and malleability (Sauce & Matzel, 2018). Consequently, it is possible that the efforts put forth to improve intelligence may be more fruitful the earlier that they are implemented. This suggests that if they are effective in improving intelligence, mindset interventions employed with young children could be more impactful than those implemented with older students.

Mindsets and Academic Achievement

In addition to the proposed impact on intelligence, Dweck also theorized that a growth mindset would be associated with stronger academic achievement (Dweck & Yeager, 2019). Meta-analytic research has provided support for this theory with some stipulations. One meta-analysis examined a total of 412,022 students from middle school through college and measured their existing mindsets and academic achievement without providing any form of intervention. The results suggested that an incremental theory of intelligence has a weak but statistically significant association with academic achievement. When examining moderators, they found that while the relationship between mindset and academic achievement was generally weak, it was stronger for the youngest group of students (those in middle school grades) (Costa & Faria,

2018). An additional meta-analysis that examined a total of 365,915 students also found that the correlation between growth mindsets and academic achievement was generally weak but stronger for younger children (Sisk et al., 2018).

The meta-analysis conducted by Costa and Faria also found that their results varied across countries. Eastern continents (Asia and Oceania) presented with a positive association between growth mindset and academic achievement, while this association was negligible for North America. However, in North America a fixed mindset was negatively correlated with academic achievement, suggesting that in this country a fixed mindset may be more detrimental than a growth mindset is advantageous (Costa & Faria, 2018). Though some researchers have contested the overall findings of these analyses (Yeager & Dweck, 2020), the results suggest that geography, culture, and age may have a significant impact on the way that mindsets impact individuals. For a more in-depth review of the first era of mindset research, consult Dweck and Yeager (2019).

Intervention Research (The Second Era)

The second era of mindset research was focused on intervention. Many mindset interventions focus on encouraging students, parents, or teachers to adopt growth mindsets. These interventions have been delivered in a variety of formats, but all share a primary objective of increasing student's beliefs that human attributes such as intelligence can be improved with effort and practice (Dweck & Yeager, 2019; Sisk et al., 2018). Effective mindset interventions often relate this idea to neuroplasticity when teaching students about the ability to improve intelligence, and sometimes use metaphors such as "the brain is like a muscle." Many also utilize modeling by showing testimonials or teaching about notable successful figures who have

attributed a portion of their success to the adoption of a growth mindset (Yeager & Dweck, 2020).

Pioneers of mindset theory have also listed crucial elements that they argue are imperative for mindset interventions to be effective. First, they stress it is important for interventions to make it clear that ability can be developed. Simply telling students that they succeeded because they tried hard is an attribution manipulation; a mindset intervention must explicitly teach students that they have the potential to change and improve with effort. They have also noted that it is important to acknowledge differences in ability across individuals and focus primarily on within-person comparisons. Finally, and most importantly they stress that interventions must not only teach the definitions associated with mindset theory but need to also teach students how to put a growth mindset into practice and provide the ongoing support and resources needed to instill and maintain student's motivation for change (Yeager & Dweck, 2020).

Individual Interventions. Interventions designed to increase student's growth mindsets have been implemented in multiple countries around the world to improve academic achievement. A recent meta-analysis was conducted to examine the effectiveness of these interventions. The results showed a weak but statistically significant association between growth mindset interventions and academic achievement ($d = 0.08$), and younger students benefited more from these interventions than their older peers (Sisk et al., 2018). A few individual studies have also found positive effects for mindset interventions implemented with young (elementary aged) children (Miele et al., 2013; Peterson, 2018). The meta-analytic results also support the claims that economically disadvantaged students and students at high-risk for academic failure may benefit from engaging in interventions that encourage adoption of a growth mindset, as low

SES students experienced a much more significant effect ($d = 0.34$) than their high SES peers ($d = 0.03$). Though the results seem to suggest that mindset interventions provide additional benefit for students at high-risk for academic failure, the authors stress that additional research is needed to support this claim as only a small number of included studies examined this variable (Sisk et al., 2018).

It is important to stress that while these analyses support the claim that mindset interventions have the potential to improve academic achievement for specific groups of students, they cast doubt on claims that they can provide a benefit for all students. The overall effect size was quite low and some groups of students, such as those with high SES and at low risk for academic failure, did not appear to receive any benefit from the interventions. The authors of the meta-analysis suggest that it may be more practical for resources to be allocated towards specific educational interventions instead, which tend to have a more significant effect on academic performance (Sisk et al., 2018).

Pioneers of mindset research have argued that the quality of mindset interventions varies greatly and that the findings of the meta-analysis cited above underestimate the effectiveness of mindset interventions because they included studies that left out crucial elements from their interventions (Yeager & Dweck, 2020). These researchers also noted that in some circumstances mindset interventions alone are insufficient and may not have a significant impact on student's outcomes. If children are taught to adopt a growth mindset but not given the skills and tools that they need to improve they may become frustrated, or teachers may simply begin to lower expectations. With these thoughts in mind, they have encouraged future researchers to examine the effect of mindset interventions combined with educational interventions that explicitly teach academic skills and material (Dweck & Yeager, 2019). Additional research syntheses that clearly

distinguish between high- and poor-quality mindset interventions based on the crucial elements described by Dweck and Yeager may also be helpful.

Key Mindset Intervention Components. In a recent paper Dweck elaborated on some of the hallmarks of effective mindset interventions. A major component is age-appropriate and brief psychoeducation about how the brain grows and changes with experience. Another component is the explicit teaching that you can get better with effort, being paired with activities or supports that give them the skills they need to improve. Good growth mindset interventions teach that ability has the potential to be developed but acknowledges that the change may not come easily. This also highlights the importance of providing appropriate support relevant to the subject, telling kids they can improve with hard work, but not giving them the guidance needed to improve, will likely lead to frustration and be counterproductive to improving mindset, (Dweck & Yeager, 2019; Yeager & Dweck, 2020) and could have negative implications for academic self-efficacy as well.

Parent Intervention. Research has also suggested that a parent's mindsets (i.e., beliefs about whether their child can grow and improve) impact the way that they interact with and engage in educational activities with their children and may have an indirect effect on their children's mindset. A large scale randomized controlled trial (RCT) involving a total of 1,587 second grade students examined the impact of an intervention targeting parents of poor readers that focused on mindset and reading skills. Parents were explicitly taught that their child could improve their reading skills with practice (mindset intervention), taught specific strategies for supporting their children's reading activities and development at home, and lastly were encouraged to deliver process (effort) praise as opposed to performance praise when working with their children (Andersen & Nielsen, 2016). Performance praise can reinforce the idea that

abilities are fixed while process praise encourages students to work to improve their abilities and seek out more challenges (Andersen & Nielsen, 2016; Pomerantz & Kempner, 2013).

The results of the RCT showed that the intervention had a significant impact on improving student's reading skills. Due to the combined treatment approach, it is not possible to determine to what extent these results are attributable to the reading intervention or the mindset intervention. However, one interesting finding related to mindsets is that the children of parents who endorsed a fixed mindset during baseline data collection showed greater improvement compared to those with a growth mindset at baseline, suggesting that the mindset portion of the intervention had a positive impact on children's reading skills (Andersen & Nielsen, 2016). Interventions geared towards parents may be particularly beneficial because they can improve the quality of educational activities that children are exposed to outside of school hours, and parents increasing their belief that their children can improve may have an indirect effect on improving children's confidence, self-esteem, and self-efficacy. However, additional research is needed to better understand the impact of mindset interventions focused on parents.

Reading Mindset Intervention. Improving reading skill requires extensive persistence, effort, and time dedicated to reading. Therefore, student's self-efficacy beliefs, particularly about their reading skills may significantly mediate the impact that reading intervention and instruction have on those skills. If their persistence and will to practice is inhibited, it will be more difficult for them to acquire fluency (Peura et al., 2019). A mixed-methods research study applied a mindset intervention to improve the self-efficacy of students related to their math abilities (Castiglione, 2019), suggesting that interventions focused on increasing a growth mindset may also increase self-efficacy. Together, this information suggests that a mindset intervention tailored to reading skills may be particularly efficacious.

Finally, as mentioned earlier it is imperative that, in addition to teaching children that they can grow and improve their ability with effort and practice, we also provide them with the support they need to do so. One great method for achieving this is to pair the mindset intervention with an evidence-based intervention targeted at whichever skill the student is struggling with (Yeager & Dweck, 2020).

The Current Study

As mentioned earlier in this manuscript, approximately 35% of American fourth and eighth graders are considered proficient in reading, and further review of these data on reading achievement suggests that students with lower socioeconomic status have poorer reading abilities compared to their peers with more resources (National Center for Educational Statistics, 2019). Meta-analytic research on mindset interventions suggests that though effect sizes for these programs on academic achievement are generally small, they are significantly larger for students with low SES (Sisk et al., 2018). Additionally, mindset researchers suggest the smaller effects may have been present because all mindset interventions are not equally efficacious (Yeager & Dweck, 2020) and may be counterproductive when not paired with academic interventions or supports (Dweck & Yeager, 2019). With these findings in mind, the combination of a reading and mindset intervention may be of particular benefit to students, particularly those in lower SES groups, given that great care is taken to ensure that both the reading and mindset interventions are of high quality and include key theoretical components.

I theorized that promoting a growth mindset will result in more effort and practice put towards reading, which will result in improved reading success, which will raise student's self-efficacy, which will ultimately increase their intrinsic motivation to read. I posited that the parent-focused portion would interact as well, increasing parent's beliefs about their child's

ability to grow and providing psychoeducation about best practices for reading, which would in turn improve children's intrinsic motivation. Finally, I posited that this improvement in motivation would result in more reading effort and practice and create a snowball effect that caused this model to cycle. See Figure 1 for a visual draft of this proposed model.

Before testing the effectiveness of the parent-delivered literacy and mindset intervention, it is important to gather data from parents related to the implementation feasibility and usefulness of the materials provided and covered in the intervention. This is crucial because research on mindset interventions with elementary school students is quite limited. Although there have been a few studies examining a computer-based mindset intervention with third and fourth graders (Wanzek et al., 2021; Wolferd, 2021), as of the writing of this paper, none have attempted this intervention with students below third grade. There has also been some research on the effect of changing parent's mindsets about their child's ability to grow (Andersen & Nielsen, 2016), but none have focused on parents providing mindset intervention to their children. In addition, although the PASTEL guidebook was systematically developed according to a research review conducted by the developer, there are currently no available peer-reviewed studies examining its use or effectiveness to date. This study fills research gaps and informs future research and clinical practices on this topic. The primary purpose of this research study was to examine implementation feasibility and usefulness of the materials provided in the intervention. A secondary purpose was to examine the level of change across all outcome measures for participants in this pilot study.

Research Hypotheses

1. Parents would be able to implement the combined PASTEL/Mindset intervention with fidelity and report the intervention to be feasible for use at home.

2. Parents would find the combined PASTEL/Mindset intervention and associated trainings/coaching to be acceptable and useful.
3. Students of parents implementing the PASTEL activities will see pre- to post-test increase in their DIBELS Next Composite scores.
4. Students will improve across all psychosocial outcome measures relative to their pre-test self-ratings.
 - a. Students will see pre- to post-test gains in their level of growth mindset.
 - b. Students will see pre- to post-test gains in their academic self-efficacy.
 - c. Students will see pre- to post-test gains in their academic intrinsic motivation.
5. Parents and guardians will improve across all psychosocial outcome measures relative to their pre-test self-ratings.
 - a. Parents and guardians will see pre- to post-test gains in their self-efficacy related to affecting their child's academic skills development.
 - b. Parents and guardians will see pre- to post-test gains in the level of growth mindset they endorse regarding their child's ability to improve.

CHAPTER II: METHOD

This study utilized a one-group pre- and post-test design with a total of 10 students and their parents/guardians. The primary interest of the study was to evaluate the feasibility of implementation and examine if students and their parents/guardians improve across all outcome measures. This study was completed in two parts. First, a pilot study was completed with one parent. Feedback was gathered, and recruitment methods were updated accordingly for the second rollout, during which nine more parents were recruited.

Pilot Study 1 Procedures

Pilot Study 1 was conducted during the spring semester at a public elementary school in the local area. Kindergarten through fifth grade students at this school who are identified to need supplemental or intensive support in reading received tier 2 and/or 3 reading interventions as part of the schools existing MTSS problem solving process. The parents or guardians of these students were invited to participate in the parent group. A general meeting time (Monday afternoons) was selected after consulting with staff at the school who had previously run groups with parents.

Recruitment and Participant

First, the informed consent form (Appendix A) and a flyer with an overview of the program and meeting times (Appendix C) was sent home with the students of all eligible parents, along with an email reminder. Eight parents returned the informed consent form, and follow-up calls were made to each of them to confirm the meeting time and probe for questions. All but two parents confirmed that they planned to attend the meeting. However, only one parent attended the scheduled meeting. This parent was female, Caucasian, and held a master's degree. The student was female and in the first grade.

Intervention Details

Pilot Study 1 lasted for eight weeks. The parent attended one-on-one meetings (approximately 45 minutes each) for the first four weeks. The first meeting provided general information about the PASTEL program and the growth mindset resources that would be used. The informed consent form and research processes were explained, and an opportunity for questions was provided. Prior to the second meeting, the author met with the students' teacher to review the available PASTEL activities and select one that was an appropriate match.

The second meeting provided an overview of the optional supplemental materials (Star Chart, Phoneme Pronunciation Guide), and coaching on how to use the Spin-A-Word intervention (described later in this chapter). The third and fourth sessions focused on teaching the content from the Mindsetkit website. The parent completed the Spin-a-Word intervention at home with her student an average of 3 times per week for 10 minutes per session for the final seven weeks. She incorporated the mindset activities into the last four weeks.

At the conclusion of the intervention, feedback was gathered from the parent. The parent reported that both her and her student found the Spin-A-Word activity enjoyable. She reported consistently utilizing the Star Chart, and she reviewed the Phoneme Pronunciation guide towards the beginning of the intervention period. When asked if she would preferred the in-person meetings or would have preferred an independent alternative (having the PASTEL materials sent home), she reported preferring the in-person meetings and appreciated being able to ask questions as they arose. She did share that she thought fewer meetings may help to increase parent participation.

Pilot Study 2 Procedures

The second pilot study was completed at the same public elementary school during the summer. All students below a certain cutoff point according to end-of-year assessments were invited to attend three weeks of summer school in July. All parents invited to summer school were invited to participate in the study. The original four meetings were condensed into two meetings in an attempt to increase parent participation by reducing the time requirements of the program. Invited parents were asked to attend two 45-minute group meetings and to complete the combined PASTEL/Mindset intervention at home with their child, three to four times a week for five to 10 minutes at a time for the duration of summer school (three weeks).

Recruitment and Participants

The content covered in the first session of pilot study 1 was adapted to a recruitment event at the summer school open house. A flyer providing general information (Appendix D) was generated, sent home to parents via email before open house, and a physical copy was provided to all parents who attended open house. All parents who attended open house stopped by the PASTEL booth to learn more about the group and to sign-up and complete the informed consent form (Appendix B) if they were interested in participating. A general meeting time was selected for Monday afternoons directly before dismissal, so that the meetings would end around the same time parents were to pick up their children. Additionally, all interested parents completed a parent information form (see Appendix E) to gather contact information for scheduling purposes, and they were directed to fill out the availability portion of the form if they were interested in participating but unavailable at the scheduled time. The availability form offered meeting times Monday-Thursday, 8:00am – 5:00pm. A total of 27 parents signed up to participate at the recruitment event. Twenty-two parents signed up to attend the prescheduled

meetings, and five parents reported being unavailable at that time and were offered individual meeting times based on their availability.

Reminder emails were sent to the 22 parents who signed up for the prescheduled meeting approximately 48 hours before the group. Seven of these parents showed up and participated in the program. Four of the five parents who were offered individual meetings responded and confirmed the offered time worked for them. Reminder emails were sent approximately 48 hours before their meetings. Two of these parents showed up to their scheduled times and participated in the program. Demographic information for participants is summarized in Table 2.

Meeting Content

The first meeting started with a review of informed consent after parents completed a demographic form and the pre-tests. They were then provided with a folder containing all materials needed to implement PASTEL activities with their child. The left side of the folder had a flyer with QR codes for accessing a free e-book of the PASTEL guidebook and for quick access to the Phoneme Pronunciation Guide (Appendix F). It also contained a copy of the informed consent form. The right side of the folder contained the activity tracker (Appendix I), the Star Chart and Bonus bag (Appendix J), and all materials needed to implement the activity selected for their child (more detail provided in the activity selection section below). A bin was provided with a variety of small toys and pieces of candy, and parents were encouraged to take some items to use with the Star Chart reward system. Afterwards, explicit instruction was provided on how to use the optional Star Chart and Phoneme Pronunciation Guide. Finally, parents were provided with brief psychoeducation on reading development (the Big Five, eliminating Schwa sounds) and the interventionist shared how the individual activities were selected. Finally, parents went into groups and were coached on how to use the individual

Table 2*Pilot Study 2 Participant Demographic Data*

Demographic information	<i>n</i>	% of Sample
Relation to student		
Mother	6	67%
Grandmother	2	22%
Stepfather	1	11%
Race		
Black	4	44%
Black/White	2	22%
White	3	33%
Parent Education		
High School	3	33%
Some College	3	33%
Associate or Bachelors	3	33%
Parent Age		
21-29	2	22%
30-39	5	56%
40-49	2	22%
Student Grade		
Kindergarten	3	33%
First Grade	2	22%
Second Grade	3	33%
Third Grade	1	11%

Note. Student grade is based on the 2022-2023 academic year.

activities. At the end of the meeting, parents were thanked for their participation and reminded of the time for the second and final meeting.

Three of the seven parents who attended the first group meeting also attended the second. One of the two parents who attended the first individual meeting also attended the second. The second meeting started with a check-in on the PASTEL activities and their supplements. All the parents reported that their students seemed to enjoy the activities, they perceived the program to be working well, and they did not have additional questions at that time. After the check-in, explicit instruction on growth mindset research and activities were provided using the lessons and activities included in <https://www.mindsetkit.org/growth-mindset-parents> (Beaubien et al., 2016). Dweck elaborated on the differences between effective and ineffective mindset interventions (Yeager & Dweck, 2020), and elements of effective ones are summarized below. The materials included in Mindsetkit (MSK) were reviewed to ensure the following components were included.

1. Explicit teaching that students can improve with effort while acknowledging that does not necessarily mean it will be easy (Yeager & Dweck, 2020).
2. (Age-appropriate) brief psychoeducation about how the brain grows as we learn (Yeager & Dweck, 2020).
3. Tailoring the intervention to specific deficits such as reading instead of teaching a global mindset (Dweck & Yeager, 2019).
4. Teaching parents to engage in process praise as opposed to person praise (Dweck & Yeager, 2019; Wanzek et al., 2021).

Parents watched three informational videos and learned how to use three activities gathered from Mindsetkit. Afterwards, they were asked to continue implementing the PASTEL activities

for the duration of summer school and encouraged to reach out to the interventionists for individual consultation sessions as needed. They were also asked to incorporate the first two mindset activities into the PASTEL activities when possible, and to complete the third mindset activity with their child at least once before the program was completed. Finally, they were provided with a one-page handout with a link to the video and an overview of the mindset activities reviewed in the meeting (Appendix K).

The first activity was to model making mistakes. Parents were encouraged to incorporate this into the program (e.g., consulting the dictionary or phoneme guide during activities if needed, talking through mistakes related to general life activities such as cooking). The second activity was focused on providing process as opposed to person/performance praise. Parents were provided with explicit instruction and then completed an activity from Mindsetkit requiring them to distinguish between person and process praise. Finally, the parents were shown a video detailing how the brain grows with experience. For the third and final mindset activity, they were asked to either show their child the final video and discuss it with them, or to summarize and share it with them, while relating it to their reading development (e.g., explaining the study and discussing how the brain gets better at reading when we practice).

Individual Activity Selection

The PASTEL guidebook contains more than 60 activities that can be used with students in grades kindergarten through fifth grade. To keep meeting times brief and to promote ease of teaching the activities to multiple parents at a time, one activity was selected for each targeted skill.

The letter/sound identification intervention used was the Grab Bag ABC intervention (Appendix L). It is a game-like reading intervention that contains all the letters of the alphabet in

a brown bag. The PASTEL guidebook provides a printout of all the letters. Parents and their students go back and forth between pulling a letter and producing the associated sound. When pronounced correctly, the player keeps the card. When pronounced incorrectly, the parent models the correct sound, and then puts it back into the bag to be used again. There are also three “lose a turn” cards included. At the end of the intervention, the parent and child count up who gathered the most letters, and the one with the most “wins.” Three kindergarten students received this intervention.

The phonics/decoding intervention used was the Spin-A-Word intervention (Appendix M). It contains three spinners that are used to create various real and nonsense three-letter words. The PASTEL guidebook provides a printed arrow that can be cut out and used as a spinner. Instead, parents in this study utilized fidget spinners as the spinner instead. For each session, students will spin each spinner to get three letters. As each letter is selected, they write it on the provided worksheet, and tell the sound it produces. After all three are written down, they then blend the word, and determine if it is a real or nonsense word. Throughout the intervention, the parent provides immediate correction as needed. Two first-grade students and one second-grade student received this intervention.

For reading fluency, the Echo Me intervention (Appendix N) was utilized. Parents simply read a book of interest with their child. They start by reading a paragraph while modeling fluent reading, and then the student rereads the same paragraph. For any errors the student makes, they practice a short phrase around the word afterwards multiple times. Parents were encouraged to use any books already of interest in the home for the intervention. They were also offered the opportunity to stop by the school library before leaving to select a book together with their child. Two second-grade students and one third grader received this intervention.

During pilot study 1, teacher consultation was utilized to select appropriate interventions. However, due to the structure of summer school, most teachers had not yet worked with the students in pilot study 2. Therefore, the activities were selected for each student based on a review of the most recent DIBELS Next progress monitoring data, which was systematically gathered from all students in late May. Activities were targeted at the next-level skill for which the student had not met benchmarking data (e.g., if they did not meet benchmark on phoneme segmentation fluency (PSF), then a letter/sound identification intervention was selected). None of the included students had met benchmark for reading fluency, so no comprehension interventions were utilized.

Pilot Study 2 School-Based Reading Intervention

Eligible summer school students attended four days a week for three weeks. The primary reading intervention utilized was mCLASS and *Boost Reading* (formerly known as *Amplify Reading*). The mCLASS system groups students based on the most pertinent skill for intervention according to DIBELS Next progress monitoring data and recommends a combination of small-group and individual interventions for teachers to utilize. *Boost Reading* is one of the options provided for individual intervention; the program provides tailored interventions that adapt instruction in accordance with student responses and progress (Amplify Education, 2015; 2021).

Materials and Measures

All intervention materials were gathered from the PASTEL guidebook (Begeny et al., 2018) and the Mindsetkit website (Beaubien et al., 2016). Aside from printer paper and the intervention materials, all other materials were gathered from a local dollar store and an online retailer. Other materials included pens, fidget spinners (for Spin-a-Word intervention), candy,

brown paper bags (for bonus bag and Grab Bag ABC intervention), and folders, and were paid for by the author. The PASTEL guidebook materials were printed and prepared prior to the group meeting by the school psychology intern (the author) and the school counselor. A bonus bag was made for each parent according to the directions gathered from the Star Chart (Begeny et al., 2018). Folders containing all materials required for intervention (as described in the above section) were prepared for all 27 parents who indicated interest in the study. The measures that were used in this study are discussed below.

Parent Measures

The *Ability Mindset Scale* and the *Effort Mindset Scale* (Blackwell et al., 2007; Dweck, 1999) were adapted to measure parent's perceptions of the child's ability to grow and improve with practice (e.g., a fixed or growth mindset related to their child's ability) (Justice et al., 2020). Justice et al. reported a Cronbach's alpha of 0.62 for their adaptation of the ability scale and a Cronbach's alpha of 0.61 for their adaptation of the effort scale. This parent mindset measure was further adapted (Appendix O) as required by the district leader in charge of approving education research projects (explained in more details in the adaptations section below). It contains six questions and utilizes a six-point Likert type scale. Higher values indicate parents are closer to a growth mindset, while lower values indicate being closer to a fixed mindset. The possible values range from six to 36.

The *Parental Self-Efficacy for Helping the Child Succeed in School Scale* (Appendix P) was utilized to measure parental beliefs about their personal ability to make a difference in their child's educational outcomes through their involvement and will be used in this study. It contains seven questions and utilizes a six-point Likert type scale. Higher scores suggest higher levels of

self-efficacy and vice-versa, and possible scores range from seven to 42, and the Cronbach's alpha for this measure is 0.78 (Green et al., 2007; Hoover-Dempsey & Sandler, 2005).

Child Measures

To assess reading improvement, DIBELS Next Composite scores (described in more depth in the first chapter) were evaluated. All students were screened in late May of the previous spring semester and screened again during the last few days of summer school. The summer DIBELS Next scores were unavailable for three students because they were absent during the time of testing.

There is a scarcity of existing measures assessing mindset in students under the age of 10 years old (Andersen & Nielsen, 2016). The *Ability Mindset Scale* and the *Effort Mindset Scale* (Blackwell et al., 2007; Dweck, 1999) were adapted to measure parents' level of growth or fixed mindset (Justice et al., 2020). The tense from this measure was adapted to make the items relevant to children instead of parents. A lab team consisting of one doctoral student and one doctoral level psychologist reviewed the updated scale to ensure it resembled the original as closely as possible. An additional adaptation was required by the school district where this research was conducted, and this is explained more in the below section. This adapted child mindset scale (Appendix Q) contains seven items and utilizes a six-point Likert type scale. Higher values indicate students are closer to a growth mindset, while lower values indicate being closer to a fixed mindset. Possible scores range from seven to 42.

For motivation, the *Academic Motivation Scale* (Appendix R) was used; it is brief five-item scale with four response options that measures the extent to which students feel motivated to learn in school. The elementary school version contains language more suitable for younger children and was utilized for this study. The minimum possible score on this measure is five and

the maximum is 20. Higher numbers indicate higher levels of academic motivation. The Cronbach's alpha for this measure is 0.69 (Anderson-Butcher & Amorose, 2012).

To measure self-efficacy, the self-efficacy subscale (Appendix S) of the *Motivational and Self-Regulated Learning Questionnaire* developed by (Pintrich & De Groot, 1990) was used. It contains nine items and utilizes a seven-point Likert type scale. The possible scores range from nine to 63, with higher values indicating higher levels of self-efficacy and vice versa. The Cronbach's alpha for this measure is 0.89 (Pintrich & De Groot, 1990).

Adaptations

The school district leader in charge of overseeing and approving all educational research projects that take place in the district required a few minor changes to our utilized measures before approving the project. They raised concerns with the negative wording in some of the questions and requested that be excluded or changed. These changes are described below.

The district requested that one item from the child's mindset scale to be changed. The original item, "when I have to work too hard at learning activities, it makes me feel like I am not very smart" was changed to "when I don't have to work very hard on learning activities, it makes me feel like I am smart". The scoring for this item was reversed.

The district requested that three items on the parent mindset scale be changed. First, "after a certain point in childhood, my child's ability to learn cannot improve" was changed to "after a certain point in childhood, it will become harder for my student to learn". Second, "if my child is not good at learning activities, working hard won't make them good at it" was changed to "if my child is already good at learning activities, working hard won't make a difference." The scoring for this item was reversed. Finally, "when my child seems to work too hard at learning activities, it makes me feel like they are not smart" was changed to "when my child does not

need to work hard at learning activities, it makes me feel like they are smart.” The scoring for this item was also reversed.

Informal Measures

Additionally, qualitative data were gathered from parents on their perceptions of the effectiveness and feasibility of the group intervention and PASTEL guidebook, and their impressions of how easy or difficult, and fun or aversive the PASTEL activities were to implement. This information was gathered from a brief group interview conducted during the second meeting and a survey sent home to parents (Appendix H).

Pilot Study 2 Data Collection

All parent pre-tests were completed during the first meetings. All nine parents completed and returned the adapted mindset scale at pretest. Only five of the nine parents returned the self-efficacy scale at pretest, the other four were presumed to be accidentally taken home with the PASTEL folder. The school counselor called and requested that parents send these forms home when they sent home the post-test folders, but none were received (all three parents who returned physical post-test folders had already returned their self-efficacy pre-tests).

During the last week of summer school, post-test folders were sent home to all parents along with two reminder emails. The folder included an instructions page (Appendix G) that asked parents to complete the attached surveys, include the activity tracker, and then send the folder back to school with their students. Three of the nine parents that participated in the summer program returned the physical folders. An electronic option was sent to the other seven parents twice, about one week apart. One of these parents completed both the survey and post-tests. Another parent completed only the survey.

The psychosocial child measures were administered by the school counselor. Pre-tests were completed during the first week of summer school, and post-tests were completed during the last. DIBELS Next composite scores from the end of the 2022-2023 school year were used for the reading pretest. DIBELS pre-test data was available for all students. Teachers completed DIBELS Next testing again during the last week of summer school. Three students were not present for testing and did not have post-test scores available for reading.

Individual DIBELS subtest data for the targeted area of intervention were also examined. The recommendation to include this data was provided after the completion of the study, when summer DIBELS scores were no longer available to the researcher. The researcher was able to access beginning-of-year scores for the current year (2023-2024) – these scores are reported in place of the summer scores for these variables.

Pilot Study 2 Data Analysis

All psychosocial measures were hand scored by the author. After the initial scoring, the author reviewed all forms for accuracy two times, on two separate days, to promote accurate scoring. All analyses were performed using the *R* software (R Core Team, 2020). Multiple paired samples t-tests were completed to compare parent's and student's performance on all included measures before and after the intervention(s). One-tailed (greater) tests were utilized as all outcome measures were hypothesized to increase over the course of the intervention. The Shapiro Wilk test was used to confirm normality across variables, as it has been shown to be an appropriate option for studies with small sample sizes (Mishra et al., 2019). Listwise deletion was used to handle missing data (McNeish, 2017). I also aimed to examine correlations between the amount of time parents spent engaging children in literacy activities at home with all measures, but data were not available to draw related conclusions.

CHAPTER III: RESULTS

The primary purpose of this research study was to gather informal and qualitative data from parents related to the implementation feasibility and usefulness of the materials provided and covered in the intervention. Another important purpose was to examine the level of change across all outcome measures. Tables and descriptive statistics related to all research questions are presented below.

Pilot Study 1

Statistical calculations were unable to be made with the single participant available. Qualitative findings are discussed instead. The participant reported that they found the Spin-a-Word activity to be easy to implement and that her child appeared to find it fun. She also reported that her student appeared to be very motivated by the star chart.

At both pre- and post-test, the parent endorsed the highest level of growth mindset possible on the adapted parent mindset scale (e.g., score of 36). The student's DIBELS composite score went from 355 in January 2023 to 415 at the end of May 2023. It is important to note that the student received tiered interventions from the school team for most of the academic year, and the parent implemented the PASTEL activities between April and June, and the data required to examine the separate effects of each are not available.

The parent completed a post-test packet during the last group meeting. She indicated that she learned new information from the PASTEL and mindset lessons, and that she preferred in-person meetings as opposed to an independent access option, adding the comment that she appreciated being able to ask questions in the moment. During the last meeting she was also probed for feedback on the group structure informally. The parent suggested that offering the optional consultation sessions would likely be a helpful support for some parents but presenting

it as an eight-week group may have caused some potential participants to overestimate the time commitment required of the program. In addition to consolidating the didactic content into fewer meetings, the participant recommended simply offering the additional sessions upon request instead of including them in schedule. Finally, she shared that while the scheduled time worked well for her, she knew many parents who were unavailable during this time and recommended offering multiple meeting times to increase participation. As noted in the methods, this feedback was taken into consideration when planning for the second study during the summer semester.

Pilot Study 2 Implementation Findings

Activity Tracker

Only two parents returned the activity tracker. Their trackers indicated that the intervention had been implemented at the recommended frequency. Specifically, for the first parent, over the three-week period the intervention was implemented nine times, as recommended (5 – 10 minutes) for three of the sessions, and more than recommended six of the sessions. For the second parent, over the three-week period the intervention was implemented 10 times, as recommended for eight of the sessions, more than recommended for one, and less than recommended for one.

Informal Survey Results

Qualitative information was gathered from parents to get their perspective on the feasibility, acceptability, and usefulness of the PASTEL and Mindsetkit activities. Parents were coached on how to use the PASTEL materials at the first meeting, and feedback was gathered from the four parents that attended their second meeting. All parents reported that the activity was easy for them to implement with the provided materials, and that their children were engaged in the activity and appeared to find it fun. One parent also shared that their student was

particularly motivated by the star chart, and that they were pleasantly surprised that the student wanted to work for activity rewards (e.g., family game night) as opposed to tangible reinforcers.

Additional qualitative information was gathered from a post-test survey (Appendix H) sent to all participants. Five parents (56%) returned the survey, and their results will be discussed here. All parents answered *yes* when asked if they learned something new from the PASTEL lesson. One added a comment that “making it into a game kept her from being bored.” When asked if they found the in-person coaching helpful or if they would have preferred to access the materials independently, four parents indicated they preferred in-person assistance, and one preferred independent access.

Parents were also asked if they learned anything new from the mindset lessons and activities. One of the parents did not attend the mindset meeting and skipped the related questions. Three parents answered *yes* and one parent answered *no*. The parent who answered *no* is a teacher and provided the following comment with her response: “I already use growth mindset in my own classroom. I have already completed similar trainings that addressed this.” When asked if they preferred the in-person lesson or would have liked to access the materials independently, two parents indicated preferring in-person lessons and one preferred independent access. When asked if they incorporated any of the mindset activities into the PASTEL activities, three parents reported *yes* and one parent reported *no*. The parent who is also a teacher shared the additional comment, “Yes, I did become more mindful about my phrasing with my own child’s learning.” When asked if they found the mindset materials to be a useful supplement to the PASTEL materials, all four answered *yes*.

The final set of questions was related to feasibility and convenience, and this section was completed by all five parents who returned the survey. When asked if the meeting schedule of

two meetings lasting about an hour was feasible to attend, all parents answered *yes*. One parent provided an additional comment stating, “At first it was, but my work schedule is all over the place and I missed my second meeting.” The next question asked if they found the recommended implementation schedule (PASTEL activities three to four times a week for five to 10 minutes a time) to be a reasonable and achievable time commitment. Four parents answered *yes*, one parent did not select an answer but wrote in “it is possible my work schedule really played a huge role,” suggesting that it was not implemented at the recommended schedule due to heavy work and/or life demands. I think it is important to highlight that the two comments about the interference of work schedules came from separate parents.

The final question provided two potential options for future meeting structures and asked parents to vote on the one they thought would be best for sharing the PASTEL and Mindsetkit activities with future parents based on their experience in the summer program. The first option was that the structure stays the same as used in Pilot Study 2. The second option was “the school sends the PASTEL folders home with students (with star chart and PASTEL activities) and shares a video link that overviews how to use them. Optional consultation sessions would be provided upon request.” One parent voted for the original group format, two voted for the second option, one voted for both options, and one did not answer the question.

Pilot Study 2 Pre-Post Data

A total of nine parents/guardians participated in the Pilot Study 2. Shapiro-Wilk tests were conducted for each variable to test the assumption of normality. The results of all of these are presented in table 3. The *p*-values were above the significance level for all student outcome measures and the self-efficacy parent measure, suggesting a normal distribution was present. The

p -values were below the significance level for the parent mindset measure, suggesting these data do not follow the normal distribution.

It is important to note that the results of all included t -tests should be interpreted with extreme caution – the small sample size and limited power of this study prevent generalization of the results to the wider population, and likely affects the relevance of the reported p -values.

Table 3

Results of the Shapiro-Wilk Normality Test Across Variables

Measure	Pre-test		Post-test	
	w	p	w	p
Adapted Student Mindset Scale	0.84	.051	0.94	.528
Academic Motivation Scale	0.90	.227	0.88	.172
Student Self-Efficacy Subscale	0.91	.290	0.93	.524
DIBELS Next Composite*	0.88	.164	0.97	.921
Adapted Parent Mindset Scale*^	0.83	.047	0.82	.150
Parental Self-Efficacy Scale*	0.93	.641	0.75	.595

Note. *Indicates measures with missing data. ^ Indicates assumption of normality violated.

Reading Measure

The DIBELS Next Composite scores for the student of each participant are listed in table 4. Post-test data was not available for three participants as they were absent during the days of mCLASS testing. Three students showed improvement, two decreased over the course of intervention, and one observed no change in scores. Results of the paired t -tests for DIBELS

Next and all other outcome measures are listed in table 5. Although the mean score did grow by three points over the course of the intervention, the result was not statistically significant. A paired samples *t*-test was conducted to determine if the students' displayed a significant change in their DIBELS Next composite over the course of intervention. The post-test scores ($M = 411.67$, $SD = 28.80$) were not significantly higher than the pre-test scores ($M = 408.33$, $SD = 23.83$), $t(5) = 0.32$, $p = .382$, suggesting that the mean difference between time points is not statistically significant.

DIBELS Nonsense-Word-Fluency Word-Read-Correct scores were also gathered for students receiving the spin-a-word (phonics) intervention and are presented in Table 5. DIBELS Oral Reading Fluency scores were also gathered for students receiving the echo me (fluency) intervention and are presented in Table 6. The DIBELS Next system did not have a measure directly correlated to the skills targeted in the Grab-Bag-ABC intervention (letter/sound identification), so individual subtests were not examined for these students. The recommendation to examine individual subtest data was provided after the completion of the study when the author no longer had access to summer DIBELS scores, as they were not saved by the mCLASS system. The post-test scores for the individual subtests were gathered from beginning-of-year (BOY) assessments for the 2023-2024 school year. As a result, individual subtest data for one rising fourth grader was unavailable (the school uses separate systems for benchmarking K-3 and 4-5 students, so her BOY benchmark is from a different system). A review of these data suggests that minimal change occurred between time points.

Table 4*DIBELS Next Composite Pre- and Post-test Data*

Participant	Pre-Test	Post-Test	Change
1	432	448	+16
2	401	405	+4
3	419	419	0
4	403	389	-14
5	430	437	+7
6	377	372	-5
7	430	-	-
8	417	-	-
9	366	-	-

Table 5*DIBELS Next NWF-WRC Pre- and Post-test Data*

Participant	Pre-Test	Post-Test	Change
1	12	13	+1
2	17	13	-4
3	14	15	+1

Table 6*DIBELS Next ORF Pre- and Post-test Data*

Participant	Pre-Test	Post-Test	Change
5	46	47	+1
8	42	23	-19

Psychosocial Child Measures

Various paired samples *t*-tests (one-tailed, greater) were conducted to determine if participants showed gains on the various outcome measures between pre- and post-test. A paired samples *t*-test was conducted to determine if the students of parents implementing the PASTEL activities grew in their level of self-reported growth mindset. The post-test scores ($M = 31.78$, $SD = 4.66$) were significantly higher than the pre-test scores ($M = 26$, $SD = 6.76$), $t(8) = 3.20$, $p = .006$, suggesting that statistically significant change occurred. Another paired samples *t*-test was conducted to determine if the students of parents implementing the PASTEL activities displayed gains in self-ratings of academic motivation. The post-test scores ($M = 18.78$, $SD = 1.09$) were significantly higher than the pre-test scores ($M = 16.89$, $SD = 2.57$), $t(8) = 1.88$, $p = .048$, suggesting that statistically significant change occurred. Another paired samples *t*-test was conducted to determine if the students of parents implementing the PASTEL activities displayed gains in self-ratings of academic self-efficacy. The post-test scores ($M = 58.33$, $SD = 3.16$) were significantly higher than the pre-test scores ($M = 53.78$, $SD = 1.56$), $t(8) = 4.03$, $p = .002$, suggesting that statistically significant change occurred. It is important to note that these results should be interpreted with extreme caution given the small sample size and limited power of this study.

Psychosocial Parent Measures

Paired samples *t*-tests were also conducted on the adapted parent mindset scale and parental self-efficacy scale. It is important to note that most of the post-test data for both variables is missing. A paired samples *t*-test examined if the parents implementing the PASTEL activities displayed gains in self-ratings of self-efficacy to assist their child with reading. The post-test scores were not significantly different from the pre-test scores, $t(2) = -0.19$, $p = .567$, suggesting that statistically significant change did not occur.

Table 7

Results of the Paired T-tests for All Outcome Measures

Measure	Pre-test		Post-test		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Adapted Student Mindset Scale	26	6.76	31.78	4.66	3.20	8	.006
Academic Motivation Scale	16.89	2.57	18.78	1.09	1.88	8	.048
Student Self-Efficacy Subscale	53.78	1.56	58.33	3.16	4.03	8	.002
DIBELS Next Composite*	408.33	23.83	411.67	28.80	0.32	5	.382
Adapted Parent Mindset Scale*	33.67	2.69	31	6.88	-0.53	3	.684
Parental Self-Efficacy Scale*	32.80	5.12	31.25	7	-0.19	2	.567

Note. *Indicates measures with missing data.

Additionally, both pre- and post-test variables for the parental mindset measure failed the Shapiro Wilk test, suggesting they violate the assumption of normality. Therefore, the results of this test are not considered valid but are included in Table 7 for any parties who may wish to

review it. Additionally, a Wilcoxon Signed-Ranks test was also completed for the parent mindset because of the failed test of normality. The Wilcoxon Signed-Ranks Test indicated that the parent mindset post-tests were not significantly higher than pre-test, $Z = 5, p = 1$.

CHAPTER IV: DISCUSSION

The primary purpose of this study was to examine the implementation feasibility of a parent-led, combined PASTEL/Mindset intervention. Multiple hypotheses were also explored. In this chapter, I will discuss findings related to the implementation feasibility and each of the research questions. I will also discuss the limitations of this study and next steps for future researchers to consider. This review of the research questions is primarily focused on the second study, due to sample size limits in Pilot Study 1.

Implementation Feasibility

As noted in the methods chapter, multiple changes were made to recruitment procedures for the second study following Pilot Study 1. It does appear that these changes helped to increase parent participation. During Pilot Study 1, eight parents indicated interest and one parent participated (12% of interested). During the second study, 27 parents indicated interest and nine participated (33% of interested). Although the research design does not allow us to parse out the effects of the individual changes, each are described in the following paragraphs.

First, recruitment for the second study was completed at open house prior to the beginning of the summer semester, while in Pilot Study 1 recruitment flyers were sent home during the last few months of school. It is possible that the timing impacted participation, with parents being more likely to participate in these types of groups at the beginning of a year or semester than the end. Also, a significant difference is that the Pilot Study 1 recruitment was primarily completed via flyers and emails sent home, while the second study's recruitment was completed in person. Some parents may not have seen or read the flyers, while all parents who attended open house were exposed to the brief elevator pitch of the program. It is also possible that having the information shared directly from school personnel (e.g., the school psychology

intern and the school counselor) increased buy-in for parents who may have been anxious about participating.

Another significant difference between the two studies was the use of multiple meeting times. An initial meeting time was selected about an hour prior to dismissal, so that group meeting would end approximately at the same time parents would be able to pick up their students. In combination with this approach, availability forms were available offering alternative meeting time, Monday – Thursday 8:00am – 5:00pm, to increase accessibility of the program. Five of the 27 parents who indicated interest filled out the availability form and were offered individual meeting times.

Finally, the duration of the group was another significant difference between the two studies. In Pilot Study 1, parents were asked to attend four meetings and implement the activities at home for eight weeks. During Pilot Study 2, parents were asked to attend two group meetings and implement the activities at home for three weeks. Results of the post-tests collected during this study indicated that some parents missed meetings or did not meet the activity implementation recommendation, which they attributed primarily to busy work schedules. Given that time is a limited resource for parents, cutting the meeting time in half may have made the group seem less time intensive and encouraged more parents to participate.

Parent and Guardian Perceptions of Feasibility

The first research hypothesis was that, according to self-report, parents would find the combined PASTEL/Mindset intervention easy to implement and feasible for at home use. The second research hypothesis was that parents would find the associated coaching and trainings to be helpful and the two-week group feasible to attend. Both the Pilot Study 1 participant and the five parents who completed post-test surveys during the second study reported that they found

the activities easy to implement and they perceived that their child enjoyed them. Two of these parents also shared that their students were particularly motivated by the star chart. These findings were expected given these factors were thoroughly investigated during the development of the PASTEL guidebook (Begeny et al., 2018). However, these results provide additional confidence in the assertion that the activities are both parent- and child-friendly.

Results regarding the feasibility of attending the group meetings and implementing the activities at the recommended schedule were less clear. All parents responded that they found the schedule of two group meetings feasible to attend. However, one also commented that they missed the second meeting due to their work schedule. Three of the four indicated they implemented the activities at the recommended schedule, but one's response suggested that they implemented activities less than was recommended due to a busy work schedule. Finally, when asked to vote on a future format for sharing PASTEL activities with parents, most voted for the option where materials and an instructional video were sent home instead of the in-person meeting options. Taken together, this information suggests that considering multiple formats to meet the needs of a variety of parents may be required to maximize participation. Although it does seem that most parents found the group meetings helpful, increasing the available options for accessing the materials may help to increase parent participation, particularly for those with more limited time or transportation barriers. Even if in-person options are found to be more efficacious, a virtual option would still be more efficacious than not participating. Potential formats to consider are discussed further in the future directions section.

Student Reading Change

The third research hypothesis was that students would show pre- to post-test gains in their reading as measured by DIBELS Next composite scores. Although the mean score did grow by

three points over the course of the intervention, the change was not statistically significant. Additionally, a review of subtest-level data showed that minimal change occurred on these specific measures as well. Many different factors could have impacted these results, and theoretical explanations are provided below.

First, the intervention time frame (three weeks) was relatively short compared to typical reading interventions. Reading skills improve with substantial time and energy dedicated to learning and practice, and a longer time frame may be needed to find meaningful effects. A brief intervention such as the one described in this study is very unlikely to make significant changes in student's measured reading skills. Future research examining the effectiveness of home literacy interventions should consider more proximal outcome measures, such as data on home literacy behaviors (e.g., number of books read per week). This would directly link to the purpose of the PASTEL guidebook and may give a more detailed look at changes in reading behaviors. Also, due to missing data, only six student pairs were available for analysis. Thus, replication with larger sample sizes, a longer intervention period, and outcomes measures more closely aligned with the parent-led intervention would likely make the effects easier to identify and increase statistical power. Finally, analysis of targeted reading skills related to the intervention as opposed to composite measures would better align outcomes and intervention targets.

Comprehensive interventions are more likely to lead to positive intervention outcomes. For example, a recently published meta-analysis (Burns et al., 2023) focused on reading interventions reported separate overall effect sizes based on reading skill of the participants; typical readers were those coded as average or meeting grade level expectation, and striving readers were those coded to have low reading ability or reading disabilities who were striving to become proficient readers. They found medium to large effects for interventions targeting all

four domains captured under the Active View of Reading: self-regulation, word recognition, bridging process, and language comprehension. Statistically significant effects were found for both groups, with the effects being larger for striving readers across all measured areas (Burns et al., 2023).

Their analysis suggests that interventions in self-regulation and bridging processes contribute uniquely to reading outcomes beyond the effects of word recognition and language comprehension interventions (Burns et al., 2023). The growth mindset intervention in this study did address some self-regulatory processes captured under the Active View, and some students did receive fluency interventions from the PASTEL guidebook, which fall under the bridging process in the Active View. However, the school-based interventions in this dissertation study only targeted skills related to word recognition and language comprehension; future researchers interested in replication should consider incorporating intervention components aimed at self-regulation and bridging processes into the school-based interventions to potentially magnify the impact on student reading outcomes. See Burns et al., 2023 for a more in-depth review of the intervention domains and components captured under the Active View of Reading.

Student Psychosocial Measures

The fourth research hypothesis was that students would show pre- to post-test gains across all psychosocial outcome measures. Students showed statistically significant change across the three weeks of intervention in all measured psychosocial areas: growth mindset, academic self-efficacy, and academic motivation. Although these results are promising, it is important to note that we cannot say with confidence whether these findings were primarily related to the combined PASTEL/Mindset intervention, the three weeks of supplemental instruction provided over summer school, or a combination of the two.

Furthermore, it is important to note that the mindset scale was adapted, and these adaptations are explained further in the limitation section below. The required adaptations may have impacted the reliability and validity of the results. However, the self-efficacy subscale and academic motivation scale were both existing measures that were approved “as is” by the school district. Finally, it is imperative that these results be interpreted with extreme caution given the small sample size and limited power of this study. While these results suggest that parent-led interventions may have a positive impact on students’ academic self-efficacy, intrinsic motivation, and level of growth mindset, replication with an appropriate sample size will be key to empirically evaluating this hypothesis. This pilot project provides data to inform implementation efforts for a larger replication project.

Parent/Guardian Psychosocial Measures

The final research hypothesis was that parents and guardians would show improvement across all psychosocial outcome measures; their level of growth mindset relative to their child’s ability to improve, and their self-efficacy regarding their ability to foster their child’s academic skill development.

Unfortunately, this hypothesis was unable to be appropriately evaluated due to an abnormal distribution and missing data. The parent mindset scale pre-test failed the Shapiro Wilk test, suggesting the data were not normally distributed and the planned statistical analyses were not appropriate for this variable. Additionally, both the mindset and efficacy variables had a large percentage of missing data (55% and 67% respectively). Only four of the mindset post-tests were returned. Additionally, although four of the self-efficacy post-tests were returned, one did not return the pre-test, so there was only a sample size of three available for this variable.

Time/Dosage Impact

I aimed to examine the impact of time/dosage across all outcome variables, with the hypothesis that there would be a positive correlation between each of them. The PASTEL activity tracker has parents indicate the dates they used the intervention and approximately how much time was spent in each session (Begeny et al., 2018). The original plan was to use this form to calculate the time/dosage and to explore the correlation between dosage and all outcome measures. Unfortunately, only two parents returned the activity tracker, and this hypothesis was not able to be tested. Future researchers should consider utilizing electronic options or applications that can be accessed virtually by the research team.

Evaluation of the Proposed Model

Earlier in this paper, I described a proposed model for the expected interaction of various reading and psychosocial variables examined in this study following intervention. The descriptive data gathered from this study suggests that increases did occur in student's self-efficacy, intrinsic motivation, and growth mindset following the parent-led literacy and mindset interventions. However, there are two major limitations to the evaluation of the model. First, the small sample size and limited power of this study do not allow us to empirically assess the generalization of these results to the wider population, or to say with confidence that the observed changes were due to the parent-led interventions and not some other factor. Additionally, the structure of the study and lack of data gathered related to home literacy behaviors prevents effectively evaluating the specific interactions within the model (e.g., the time and intensity of reading intervention did not lead to meaningful skill growth, preventing the ability to draw conclusions about its impact within the proposed model). Gathering rich descriptive data on home literacy behaviors and parent perceptions of the efficiency and

enjoyability of home literacy activities in future studies would allow for a more thorough examination of the proposed model.

Limitations

The most significant limitations to this study were the small sample size and lack of a control group. Although a small sample size is typical for pilot and early implementation studies, some variables of interest were not able to be examined due to low numbers of participants or a large percentage of missing data. A larger sample size would have both improved the power of the study to find meaningful effects and allow for a wider margin of missing data. Also, the data is most likely missing ‘not at random’ – not only were many post-tests missing, but these were likely missing from parents who may have had difficulty implementing the interventions for several potential reasons, and there is no way to assess differences in the populations of interested parents who did and did not attend the meetings. Additionally, while some positive effects were found on some measures, it is difficult to determine how much is attributable to the combined PASTEL/Mindset intervention without the use of a control group, and the small sample size and low power of the study prohibit the generalization of results to the wider population.

Another limitation of this study is the use of adapted measures. A growth mindset scale has not yet been developed for students under the age of 10 years old (Andersen & Nielsen, 2016), and the child growth mindset measure was adapted based on an existing parent measure. Also, both the child and parent mindset measures used in the study required adaptations for the study to be approved by the school district. Although these adaptations were made carefully to keep items as close to the original as possible, it is important to recognize that these adaptations may have impacted the reliability of the measures. Also, data was not gathered from parents on

home literacy behaviors or perceptions of home literacy activities. Future studies should rely on existing measures with strong test-retest reliability if available and approved by the relevant educational agency, and gather rich data related to home literacy behaviors.

Additionally, most parents in this study endorsed a high level of growth mindset prior to beginning the intervention, limiting the ability to draw conclusions related to changing mindsets in parents. Finally, only two parents returned their activity tracking form, limiting our ability to draw conclusions about the effect of time spent in reading activities at home. To further explore this research question, particular attention will need to be given to increasing participation for a wider variety of parents.

The time frame likely also limits the power and generalizability of these results, particularly for reading measures. Pilot Study 1 lasted eight weeks but contained only one participant and did not allow sophisticated statistical analysis. Pilot Study 2 contained a larger sample but was completed in a condensed time frame of three weeks. As noted earlier, reading develops with significant time and practice dedicated to learning, and a longer intervention period may be needed to find meaningful effects. Future studies should examine the impact of parents implementing the PASTEL and Mindsetkit activities for a longer period.

Future Directions

The results of this implementation feasibility study suggest that parents and guardians are interested in and capable of implementing reading and growth mindset interventions in the home setting with their children. Findings also suggest that the resources utilized in this study, the PASTEL guidebook (Begeny et al., 2018) and the Mindsetkit website materials (Beaubien, 2016), are research-based, engaging, and easy for parents to implement, but additional data is needed to determine their effectiveness in addressing their relative intervention targets.

Additionally, replication with a larger sample size and appropriate statistical power will be key in empirically assessing the effectiveness of these two programs. Researchers interested in replication are also strongly encouraged to gather data on home literacy behaviors (e.g., frequency of reading at home) as a primary outcome variable. Although skill-based measures such as DIBELS Next provide valuable data regarding skill growth, these are expected to be primarily impacted by school-based intervention and instruction and are more distal outcomes. Home literacy behaviors would be a more proximal outcome for assessing the impact of home literacy interventions.

Feedback gathered from participants suggests in-person meetings may not be the most feasible and convenient way to share these resources with busy parents. Future researchers interested in replication and extension of this study should provide flexible options for participation; considering the following information to maximize parental participation. I propose that a future parent program should be rolled out in three tiers based on the level of support needed and/or wanted by the parent or guardian. For tier 1, an initial information session should be held during an open house or curriculum night, informing parents of their different options for accessing the PASTEL activities. Flyers with QR codes for requesting their own free copy of the PASTEL guidebook should be available for all parents interested in utilizing the materials independently (tier 1). The tier 2 option would be having a teacher or interventionist review available progress monitoring data to select an intervention and send home all materials needed to implement the activities at home (such as what was included in the first meeting folders in Pilot Study 2) and being provided with a YouTube link to watch a recorded presentation of the material covered in the group meetings. As a tier 3 option, parents should be offered individual or group meetings for coaching on how to use the materials. To increase

accessibility, it will be important to offer flexible meeting times, and formats if needed (e.g., teleconferencing). The most logical next step for this line of research is replication with a larger sample, using the data from this study to inform implementation. A larger sample size should be pursued so that preliminary effectiveness data can be evaluated. Alternatively, additional pilot studies could examine the implementation feasibility of all three proposed levels of intervention (tiers) discussed above, with a focus on home literacy behaviors as a primary outcome measure. After gathering parent feedback and data on outcome variables at each tier of support, findings could be evaluated to determine if large-scale replication or RCT studies would be appropriate and worthwhile.

It is also important to note, as highlighted earlier in the paper, that poverty does have a significant impact on student's reading development through a variety of interactions (e.g., home literacy environment, sleep, school funding, etc.) and they face significantly more barriers compared to their high-SES peers (Hernandez, 2011; Protopapas et al., 2011; 2016; Rumberger, 2011). While beyond the scope of this paper, a variety of community intervention, resources, and cultural changes may be needed to reduce the severity and effects of poverty of our students. Additionally, for students who are well below their peers in reading, intensive school-based interventions delivered by highly qualified educator's will likely be key in remediating their skill deficits. With this in mind, it is important to temper expectations and be aware that a brief parent-led intervention is unlikely to mitigate risk on its own. However, the descriptive information collected during this study suggests that parent-led interventions may lead to meaningful improvements in student's academic intrinsic motivation and self-efficacy, and their level of growth mindset, though replication with a more robust design is needed to substantiate these findings.

Conclusions

This pilot project examined the implementation feasibility and preliminary effectiveness data for a combined growth mindset and literacy intervention delivered in the home by parents and guardians. Using mixed methods, and both quantitative and qualitative data, results suggested that parents and guardians were interested in and capable of implementing reading and growth mindset interventions in the home setting with their children. Findings also suggested that the resources utilized in this study are engaging, fun, easy for parents to implement and related to the reading needs of the student. However, replication with a more robust design will be required to fully test this hypothesis and evaluate the effectiveness of these programs in addressing their relative intervention targets.

Also, some barriers were noted for holding in-person parent consultation meetings related to the intervention. A recommended parent programming model was discussed based on offering tiered levels of support that are needed and/or wanted by parents. Future studies should examine the impact of parents implementing the PASTEL and Mindsetkit activities for longer periods and with larger study samples. Overall, parent programs are promising tools to engage parents with their children's learning, and the procedures of this pilot project resulted in some positive outcomes for children's self-reported growth mindset, academic self-efficacy, and academic motivation.

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APPENDIX A: Pilot Study 1 Informed Consent Form



Dear Parent/Guardian,

I am working on my graduate degree in School Psychology at East Carolina University. As part of my degree requirements, I am planning an educational research project to take place at **X School** that will help me to learn more about **the effectiveness of teacher and parent-led reading interventions and how student mindsets impact response to these interventions**. The goal of this research is to provide parents and teachers with evidence-based interventions and activities they can use to support reading development, and to test the effectiveness of these interventions when paired with a growth mindset program.

As part of this project, your child will participate in typical reading interventions that the school provides. In addition, you (or another guardian) will be asked to attend an 8-week parent group, once a week for about an hour, where you will learn strategies for fostering reading development and a growth mindset in your child. Parents/guardians will be asked to complete one survey assessing perceptions of child mindset before and after the interventions. Students will be asked to complete three short surveys on ability mindset, self-efficacy, and intrinsic motivation before and after the intervention. Additionally, student's reading progress data will be examined. The results of your child's participation **will not** affect your child's grade.

I am requesting permission from you to use your child's data in my research study. Please know that participation is entirely voluntary. If you have any questions or concerns, please feel free to contact me at school at *SCHOOL NUMBER* or by emailing me at USERNAME@email.edu. If you have questions about your child's rights as someone taking part in research, you may call the University and Medical Center Institutional Review Board at 252-744-2914 (8:00 am-5:00 pm). If you would like to report a complaint about this research, you may call the Director for Human Research Protections, at 252-744-2914.

If you allow for you and your child's data to be used in my study, please return the attached form by 4/10/2023. Alternatively, you can sign the informed consent form during the first session. Thank you for your interest in my educational research study.

Your Partner in Education, *Samuel Robinson M.A., School Psychology Intern*

As the parent or guardian of _____
(write your student's name)

- ☐ I **grant my permission** for Mr. Robinson to use my child's data in his educational study regarding the effectiveness of the reading interventions. I understand that my child's data will be kept confidential, used only for the purposes of this research, that we may decide at anytime to withdraw permission, and that my child's grade will not be affected by withdrawing.
- ☐ I **do NOT grant my permission** for Mr. Robinson to use my child's data in his educational study regarding the effectiveness of the teacher and parent-led reading interventions.

Signature of Parent/Guardian: _____ Date _____

APPENDIX B: Pilot Study 2 Informed Consent Form



Dear Parent/Guardian,

I am working on my graduate degree in School Psychology at East Carolina University. As part of my degree requirements, I am planning an educational research project to take place at **X School** that will help me to learn more about **the effectiveness of teacher and parent-led reading interventions and how student mindsets impact response to these interventions**. The goal of this research is to provide parents and teachers with evidence-based interventions and activities they can use to support reading development, and to test the effectiveness of these interventions when paired with a growth mindset program.

As part of this project, your child will participate in typical reading interventions that the school provides. In addition, you (or another guardian) will be asked to **attend two parent meetings that last about an hour each**, where you will learn strategies for fostering reading development and a growth mindset in your child. **You will also be asked to complete short activities at home with your child, 3-4 times a week for 5-10 minutes at a time, for the entirety of summer school (July 10th – July 27th)**. Parents/guardians will be asked to complete one survey assessing perceptions of child mindset before and after the interventions. Students will be asked to complete three short surveys on ability mindset, self-efficacy, and intrinsic motivation before and after the intervention. Additionally, student's reading progress data will be examined. The results of your child's participation **will not** affect your child's grade.

I am requesting permission from you to use your child's data in my research study. Please know that participation is entirely voluntary. If you have any questions or concerns, please feel free to contact me at school at *SCHOOL NUMBER* or by emailing me at USERNAME@email.com. If you have questions about your child's rights as someone taking part in research, you may call the University and Medical Center Institutional Review Board at 252-744-2914 (8:00 am-5:00 pm). If you would like to report a complaint about this research, you may call the Director for Human Research Protections, at 252-744-2914.


If you allow for you and your child's data to be used in my study, please return the attached form by 7/3/2023. Alternatively, you can sign the informed consent form during the first session or at our open-house booth. Thank you for your interest in my educational research study. Your Partner in Education, *Samuel Robinson M.A., School Psychology Intern*

As the parent or guardian of _____
(write your student's name)

- ☐ I grant my permission for Mr. Robinson to use my child's data in his educational study regarding the effectiveness of the reading interventions. I understand that my child's data will be kept confidential, used only for the purposes of this research, that we may decide at anytime to withdraw permission, and that my child's grade will not be affected by withdrawing.
- ☐ I do NOT grant my permission for Mr. Robinson to use my child's data in his educational study regarding the effectiveness of the teacher and parent-led reading interventions.

Signature of Parent/Guardian: _____ Date _____

APPENDIX C: Pilot Study 1 Recruitment Flyer




As part of an educational research project, [REDACTED] is excited to offer an 8-week parent group to teach various evidence-based strategies parents and guardians can use at home to support their children's reading development!

Parents will be asked to attend the first 4 group meetings, and to practice the learned strategies at home with their children 2-3 times per week for the duration of the group.

The first session will be held on Monday, April 3rd at 5pm in the Media Center at [REDACTED] Elementary School. If interested, please join us to learn more about the group, and to get started if you would like to participate! Free pizza will be provided!

The informed consent form attached to this flyer provides more information about the group. It will be explained in more detail in the first meeting.



Group Meeting Schedule (all 5pm-6pm in [REDACTED] Media Center)

4/3/2023 – Information Session / First Session

4/10/2023 – Second Session

4/17/2023 – Third Session

4/24/2023 – Fourth Session

5/1/2023 – Optional Support Session



5/8/2023 – Optional Support Session

5/15/2023 – Optional Support Session

5/22/2023 – Optional Support Session

Please email Mr. Robinson at [REDACTED] or call [REDACTED] with any questions or concerns

APPENDIX D: Pilot Study 2 Recruitment Flyer

 <p>PASTEL Parents and Schools Together to Enhance Learning</p>	<p>As part of an educational research project, XXX Elementary School is excited to offer a brief parent group to teach various evidence-based strategies parents and guardians can use at home to support their children's reading!</p> <p>Parents will be asked to attend 2 group meetings, and use the learned strategies at home with their kids 3-4 times per week, 5-10 minutes at a time, for the entirety of summer school.</p>
<p>The groups will be co-led by Mr. Robinson and Mrs. XXX. Please come visit our PASTEL booth at open house (TIME/DATE) to learn more about this opportunity!</p>	
<p><u>PASTEL Group Meeting Schedule</u> (in SCHOOL Art Room, XXX)</p> <p>Monday, 7/10/2023 (1:00pm – 2:00pm) - Session 1</p> <p>Monday, 7/17/2023 (1:00pm – 2:00pm) - Session 2</p> <p>**Individual consultation sessions will be provided upon request**</p> <p><u>Please return the attached Parent Information Form if you are interested in participating (or complete the form at our open house).</u> Be sure to indicate your availability on the form if the proposed time does not work for you. We want to afford all interested parents the opportunity to participate!</p> <p>Please email Mr. Robinson at USERNAME@email.com or call NUMBER with any questions or concerns.</p>	

APPENDIX E: Pastel Group Parent Information Form

Please provide the following information if you are interested in participating. It will be used for scheduling purposes and to assist in selecting the activities that are the best fit for your child.

Parent Name: _____

Parent Phone Number: _____

Parent Email: _____

Student Name: _____

Student's Teacher (2022-2023 year): _____

Does the proposed time work for your schedule?: YES NO

The group meetings are scheduled for Monday July 10th, and Monday July 17th from 1pm – 2pm. We are willing to provide additional meeting times to accommodate parent availability. **If the proposed time does not work for your schedule, please put check marks under all the dates and times below that you would be able to attend.**

Dates/Times	Monday	Tuesday	Wednesday	Thursday
8:00am – 9:00am				
9:00am – 10:00am				
10:00am – 11:00am				
11:00am – 12:00pm				
12:00pm – 1:00pm				
1:00pm – 2:00pm				
2:00pm – 3:00pm				
3:00pm – 4:00pm				
4:00pm – 5:00pm				
5:00pm – 6:00pm				

APPENDIX F: PASTEL Group Helpful Resources Handout

PASTEL Guidebook



Use your phone to scan the QR code to go to the PASTEL website. Scroll down and select “Download the Guidebook”, complete the following page and a free electronic copy of the guidebook will be sent to you.

Google Search Terms (to use if QR unavailable): *PASTEL Helps Guidebook*

Phoneme Pronunciation Guide



Use your phone to scan the QR code to view the Phoneme Pronunciation guide.

Google Search Terms (to use if QR unavailable): *Phoneme Pronunciation Guide*
RRFTS

APPENDIX G: Post-Test Instruction Form

PASTEL Post-Test Instructions

Hello! Thank you again so much for taking time to participate in the PASTEL program! Please take a moment to complete the survey and post-tests included in the right side of this folder.

Afterwards, please put the activity tracker in this folder and return it to school with your child by the end of this week (July 27th). You are welcome to keep all other PASTEL materials provided to you.

Thank you again for taking the time to participate and share your feedback so we can continue to improve this program. If you have any questions or concerns, please reach out via email at USERNAME@email.com or call the SCHOOL office at NUMBER.

APPENDIX H: PASTEL Parent Group Survey Questions

Please answer the following questions based on your experience in the PASTEL group. Please provide any extra comments you think would be helpful in planning future groups.

Name: _____. Date: _____

Part 1: General PASTEL Questions

- *Did you learn anything new from the PASTEL lessons and activities?*

☐ YES

☐ NO

☐ Additional Comments: _____

- *Did the group meetings and coaching help you learn to implement the selected activities at home?*

☐ YES

☐ NO

☐ Additional Comments: _____

- *Did you prefer the group meetings, or would you have preferred to have accessed the materials and completed the PASTEL activities independently?*

☐ Prefer group meetings

☐ Prefer independent access

☐ Additional Comments: _____

Part 2: General Mindset Questions

- *Did you learn anything new from the growth mindset lessons and activities?*

☐ YES

☐ NO

☐ I did not attend the second meeting (**Please continue to part 3 if so**)

☐ Additional Comments: _____

- *Did the videos shown in meeting 2 increase your understanding of growth vs fixed mindsets?*

☐ YES

☐ NO

☐ Additional Comments: _____

- *Did you appreciate learning about the growth mindset activities in-person, or would you have preferred to access the materials online in your own time?*

☐ Prefer in-person

☐ Prefer self-paced online version

☐ Other/ Additional Comments: _____

- *Did you incorporate any of the Mindset Activities (model making mistake, utilizing process praise) into the PASTEL activities?*

☐ YES

☐ NO

☐ Additional Comments: _____

- *If so, did you find the mindset materials and activities to be a useful supplement to the PASTEL activities?*

☐ YES

☐ NO

☐ Additional Comments: _____

Part 3: Time Commitment / Feasibility

- *Was the group schedule of two one-hour meetings feasible for you to attend?*

☐ YES

☐ NO

☐ Additional Comments: _____

-
- Did you find the recommended PASTEL activity schedule (3-4 times a week 5-10 minutes per session) to be feasible to implement?

☐ YES

☐ NO

☐ Additional Comments: _____

-
- *Based on your experience in the PASTEL program this summer, which format do you believe would be the best way to share the PASTEL activities with future parents?*

☐ Two in-person group meetings, materials and coaching provided in-person (i.e., same structure as current group)

☐ The school sends the PASTEL folders home with students (with star chart and PASTEL activities) and shares a YouTube link that overviews how to use it. Optional consultation sessions provided upon request.

☐ I would not have a strong preference between these two formats.

☐ Other / Additional Comment:

APPENDIX I: PASTEL Guidebook Activity Tracker

PASTEL Activity Tracking Form

Child's Name: _____

The purpose of this form is to help parents or caregivers keep track of the student's PASTEL activities. There are many benefits of completing this form after a child completes an activity. For example, it may be helpful to share information in the form with the child's teacher, it may help to motivate the parent and child to continue using PASTEL activities by seeing how often the activities are being used, and it may help the parent and teacher recognize the student's success with the activities over time.

The parent does not need to write something in the "Comments and Notes" column each day, but may want to write something if he or she notices something unique about the child's experience, such as being particularly successful or experiencing a specific difficulty with the activity. In addition, the parent can use this column to write any questions he or she may have for the child's teacher.

Number and Name of the Activity	Day & Date Activity was Completed	Was the child mostly successful with the activity? (circle Yes or No)	Did the child enjoy the activity most or all of the time? (circle Yes or No)	Did you do the activity for approximately the suggested amount of time, less time, or more time? (circle one answer)	Comments or Notes
Example of how to complete a row P4 – Grab Bag ABC	Tuesday, Nov. 15	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> As suggested <input type="radio"/> less time <input type="radio"/> more time	She enjoyed this activity a lot and continues to improve her letter sounds!
1		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> As suggested <input type="radio"/> less time <input type="radio"/> more time	
2		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> As suggested <input type="radio"/> less time <input type="radio"/> more time	
3		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> As suggested <input type="radio"/> less time <input type="radio"/> more time	
4		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> As suggested <input type="radio"/> less time <input type="radio"/> more time	
5		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> As suggested <input type="radio"/> less time <input type="radio"/> more time	

Activity Tracking Form continued on next page (Appendix C-3)

6			Yes	No	Yes	No	As suggested more time	
7			Yes	No	Yes	No	As suggested less time	
8			Yes	No	Yes	No	As suggested less time	
9			Yes	No	Yes	No	As suggested less time	
10			Yes	No	Yes	No	As suggested less time	
11			Yes	No	Yes	No	As suggested less time	
12			Yes	No	Yes	No	As suggested less time	
13			Yes	No	Yes	No	As suggested less time	
14			Yes	No	Yes	No	As suggested less time	
15			Yes	No	Yes	No	As suggested less time	
16			Yes	No	Yes	No	As suggested less time	
17			Yes	No	Yes	No	As suggested less time	
18			Yes	No	Yes	No	As suggested less time	
19			Yes	No	Yes	No	As suggested less time	
20			Yes	No	Yes	No	As suggested less time	

Once you complete all 20 rows, start using a new form to continue keeping track of your PASTEL activities!

APPENDIX J: PASTEL Guidebook Star Chart

The PASTEL Star Chart

Student's Name: _____

	■				■			
			■				■	
■								■
		■				■		
				■				
			■				■	
	■				■			
						■		
								■
				■				
			■		■			
■		■				■		

Star Chart Rules:

- When the student earns a star in the last square of each row (a total of 15 stars), he or she earns one prize from the special prize box or a special privilege.
- When the student earns a star in a shaded square, he or she gets to select a ticket from the Bonus Bag. The number of stars written on the ticket should be immediately added to the Star Chart. (See next page for more details and instructions on how to prepare the Bonus Bag and tickets.)

Detailed Information about Using the Star Chart and Preparing Needed Materials

Instructions for Using the Star Chart

1. The bottom of the PASTEL Star Chart provides the basic directions for using this motivational tool.
2. At the bottom of the instructions page of each PASTEL activity, you will see the section labeled, "Do You Want to Use a Motivational System?" This section describes how the child has an opportunity to earn up to two stars on the Star Chart, usually one for effort and one for doing well with the activity. Using those suggestions, stars should be written on the child's Star Chart after completing the activity. If preferred, a small sticker could also be used instead of writing a star.
3. When the child earns a star in the last square of each row (a total of 15 stars), he or she should earn one prize from the Prize Box (described below).
4. When the child earns a star in a shaded square, he or she gets to select a ticket from the Bonus Bag (described below). The number of stars written on the selected ticket should then be added to the Star Chart.

Clarification Points

- If a child has 14 stars within a row (earned from previous days) and then earns two more stars during that day's activity, he or she should select a prize from the Prize Box *and* earn a star in the first square of the following row. In this way, the child does not need to "land on" the 15th square in order to earn a prize. He or she simply needs to earn a star in that last square of the row.
- Similarly, the child should select a Bonus Bag ticket every time a star is written in a shaded square. Again, the child does not need to "land on" a shaded square to select a Bonus Bag ticket.

Developing and Using the Prize Box

The parent should develop a "Prize Box" (or "Prize Bag") that includes a small item or privilege the child would enjoy earning. The child might participate in generating ideas for possible prizes or the parent can determine them. As long as the item or privilege is something the child would enjoy earning and the parent thinks is appropriate as a reward item, it is a good prize. Similar prize boxes are used in many school classrooms. We suggest that the "size" and cost of reward items can, and in most cases should, be minimal. In our classrooms, for example, we buy small items in bulk from dollar stores and therefore a single reward often costs no more than 5-10 cents. Examples of material rewards include plastic jewelry, sports trading cards (one per reward earned), decorative pencils, erasers, stickers, bubbles, and various other inexpensive items. Examples of reward privileges and related information is described in Chapter 3 of the PASTEL guidebook, in the section titled, *PASTEL Start Chart*.

Developing and Using the Bonus Bag

The Bonus Bag could be made from a small brown bag, and if desired, the words *Bonus Bag* can be written on the bag. Unlike the Prize Box, the child should *not* be able to see what is in the Bonus Bag when selecting a ticket from it. Within the Bonus Bag, you should have 16 tickets, each with information written on it. Five separate tickets should say, *1 Bonus Star*; four tickets should say, *2 Bonus Stars*; three tickets should say, *3 Bonus Stars*; two tickets should say, *4 Bonus Stars*; one ticket should say, *5 Bonus Stars*; and one ticket should say, *Pick from Prize Box!* With this arrangement of tickets, the Bonus Bag functions as a type of lottery and is fun for the child. Like the Prize Box, the Bonus Bag is essential to the PASTEL Reward procedure because it integrates several essential principles of an effective reward system.

For additional tips and information about using the Star Chart, be sure to read pages 30-34 of the PASTEL guidebook.

APPENDIX K: Mindsetkit Activity Handout

Mindsetkit Activities

Please incorporate activities 1 and 2 into the PASTEL activities when possible. Activity 3 only needs to be completed one time.

Activity 1: Model Making Mistakes

Review Mindsetkit Action Ideas

- Model mistakes during daily activities (e.g., cooking, driving, crafting)
- Discuss previous mistakes/problem-solving with your child

Consult resources during PASTEL activity

- *"Hmm I'm not sure if I'm pronouncing this right, let's check the phoneme pronunciation guide to be sure!"*
- *"Hmm I think it's a nonsense word but I'm not positive, let's check the dictionary(.com) to confirm!"*


Activity 2: Using Person Praise

Increase Person Praise <ul style="list-style-type: none">• Focused on the person or innate abilities Decrease Process Praise <ul style="list-style-type: none">• Focused on the effort or process	<div> PERSON PRAISE</div> <div> PROCESS PRAISE</div> <div><div>"You're so smart."</div><div>"You practiced your math & it paid off."</div></div> <div><div>"You are a really good soccer player."</div><div>"You played well in your game."</div></div> <div><div>"You're a hard worker."</div><div>"You're working hard."</div></div> <div><div>"You're such a good girl."</div><div>"Thank you for listening the first time."</div></div>
--	--

Activity 3: Brain Talk!

- When with your child, explain that you learned how the brain can rewire itself and become smarter when people learn new things and challenge themselves!
- Tell them a little bit about what you have read or show them one.
 - <https://www.youtube.com/watch?v=imxFYEFfplo>
 - (Which Mindset is Right? – Raise the Bar Parents)

APPENDIX L: Grab Bag ABC Intervention from PASTEL Guidebook

Grab Bag ABC		
Skill: Phonics	Focus Area: Alphabetic Principle	
Grade Level: K-2 nd	Estimated Activity Time: 10-20 minutes	
About the Activity: Using letter cards, the child will identify sounds of letters and words that begin with different letters.		
Material Preparation: <ol style="list-style-type: none"> 1. Print and cut out the Game Cards on page P4.2 or make your own based on the printable version. 2. Place the letter cards and the three “Whoops” cards into a paper bag, a bowl, or a hat. 3. Prior to working with your child, review the letter sounds using the phoneme pronunciation guide in Appendix B (page Appendix B-1). 		

Activity Instructions

Words in **bold** are sample instructions the adult can say to the child to explain the activity. Instructions are provided as a convenience; the adult can also choose to explain the activity in his/her own words.

1. Say to the child, “**We are going to play the Grab Bag ABC card game. There are 29 cards in this bag. Each card has either a letter of the alphabet or the word “Whoops!” written on it. We will take turns pulling a card out of the bag. If your card has a letter on it, you must tell me what the letter is and the sound that the letter makes. If you get it right, you get to keep your card. If you get it wrong or do not know, you must put the card back. If you pull a card that says, “Whoops!” on it you must put five cards back. A “Whoops!” card never gets put back in the bag after it is pulled out. The person with the most cards at the end of the game wins.**”
2. Do a practice round with the child following the above instructions. Since this will be the first time the child pulls a card out, have him pull out another card if he gets the “Whoops” card.
 - Note that for the letters C and G, there are two possible sounds. “C” can be soft as in “ceiling” or hard as in “cake.” Similarly, “G” can be soft as in “gem” or hard as in “goose.” If those letters are drawn, either response is acceptable.
3. Start the game.
4. If the child has to put a card back because he did not correctly identify the sound that the letter makes, tell him the correct answer before he puts the card back in the bag.
5. Keep playing until you run out of cards.

Click [here](https://youtu.be/_MqtdGnP0rQ) to watch a video demonstration of the activity, or go to https://youtu.be/_MqtdGnP0rQ

Possible Modifications

- To increase difficulty, require that the child also name a word that starts with the letter drawn from the bag (in order to keep the card).
- To increase difficulty, require that the child say both the long and short sounds of a vowel if a vowel is picked from the bag (in order to keep the card).
- Make letter cards with all of the lower case letters and play with only lower case letters or a combination of lower case and upper case letters.


Do You Want to Use a Motivational System?

- If you are using the PASTEL Star Chart, give the child one star for putting forth effort and a second star for having the most cards at the end of the game.

Grab Bag ABC - GAME CARDS

A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
S	T	U	V	W	X
Y	Z	WHOOPS!	WHOOPS!	WHOOPS!	

APPENDIX M: Spin-a-Word Intervention from PASTEL Guidebook

Spin-A-Word 	
Skill: Phonics	Focus area: Building Consonant-Vowel-Consonant (CVC) Words (such as <i>cat</i> or <i>fox</i>)
Grade Level: K-2 nd	Estimated Activity Time: 5-10 minutes
About the Activity: Using spinners, the child will identify letters and letter sounds and blend the sounds to create words.	
Material Preparation: <ol style="list-style-type: none"> 1. Print and cut out all three spinners on page P10.2 or create your own based on the printable version. 2. Draw three arrows (like the one at the bottom of page P10.2) on index cards or thick sheets of paper and cut them out. 3. Fasten arrows to the middle of the spinners using brass fasteners or something similar. 4. Print the Spin-A-Word Worksheet on page P10.3 or create your own based on the printable version. 5. Prior to working with your child, review the letter sounds using the phoneme pronunciation guide in Appendix B (page Appendix B-1). 	

Activity Instructions

Words in **bold** are sample instructions the adult can say to the child to explain the activity. Instructions are provided as a convenience; the adult can also choose to explain the activity in his/her own words.

1. Lay the materials in front of the child and say, "**We are going to use these spinners to create words. They could be real words or fake words. First you will spin the first letter spinner.**" Have the child spin and ask him, "**What is that letter and what sound does it make?**" Then have him write the letter on the Spin-A-Word Worksheet on the line next to Word 1. "**Now spin the second letter spinner and tell me what that letter is and what sound it makes. Write that letter next to the first letter.**" Pause to let the child write the letter down. Continue by saying, "**Now spin the third letter spinner and tell me what that letter is and what sound it makes. Write that letter next to the second letter.**" Pause to let the child write the letter down. Then say, "**What word did you just make?**" Let the child read the word to you. "**Is this a real word or a fake word? If this word is real, tell me what it means.**"
2. Follow the above instructions and play this activity until at least 5 words (includes real and fake words) have been created with the spinners.
3. If the child has a difficult time writing down the letter, write it for him and have him trace over the letter. If the child has a difficult time reading the letters or the words, help him read them aloud.

Click [here](https://youtu.be/D_p6lk7o39Q) to watch a video demonstration of the activity, or go to https://youtu.be/D_p6lk7o39Q

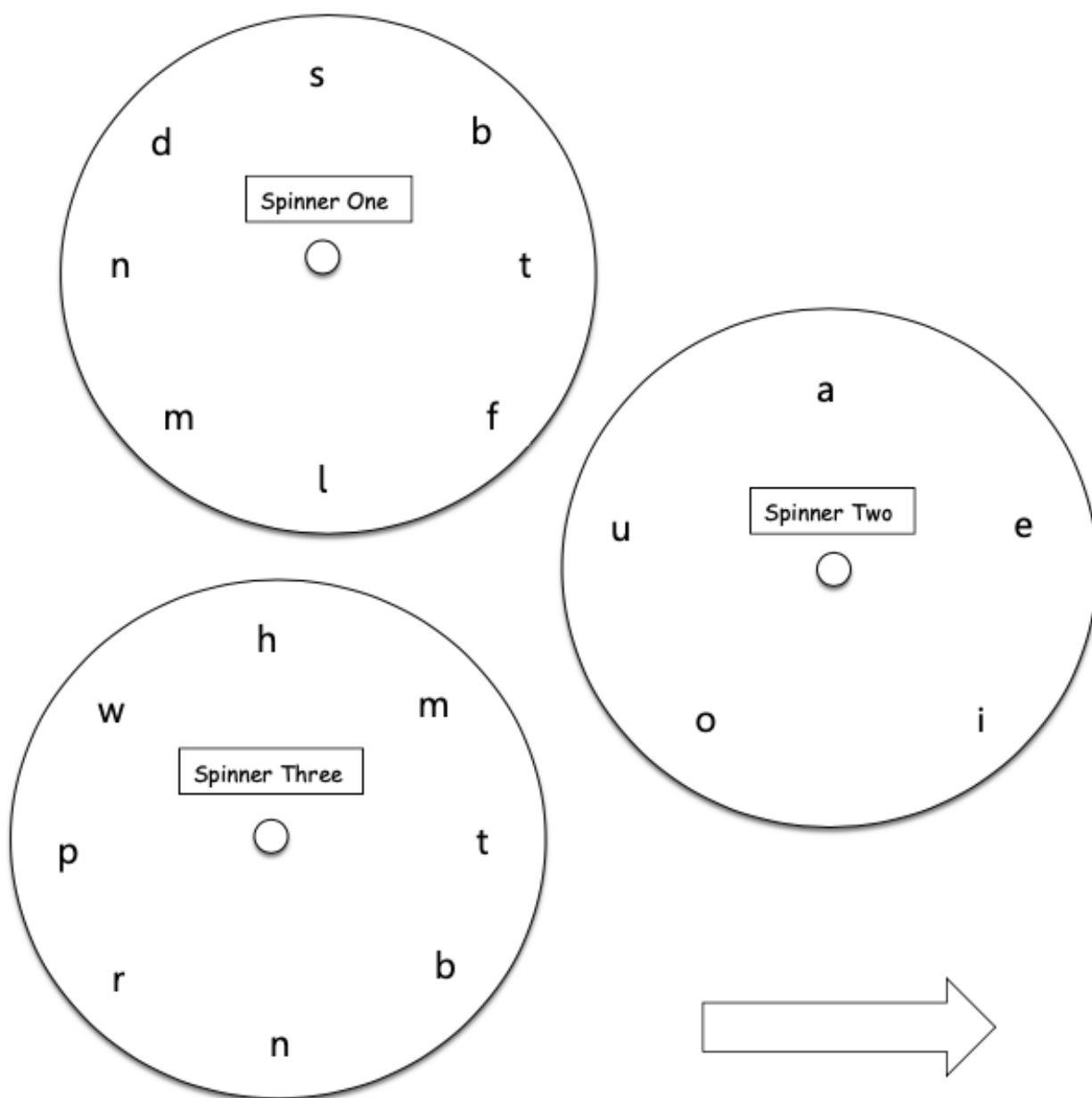
Possible Modifications

- The adult can create two cubes with letters instead of the word spinner. The child can roll the cubes like game dice in order to create words.
- At the end of the activity, add the letter "e" at the end of the three-letter word produced with the spinners and ask the child to read the word with and without the "e" at the end. In most cases, this will change the short vowel sound to a long vowel sound. For example, "bik" (with short *i* sound) becomes "bike" (with long *i* sound), and "mat" (with short *a* sound) becomes "mate" (with long *a* sound).
- The child can create longer words by spinning for a fourth or fifth letter. For example, by spinning the vowel spinner for a fourth letter the child can produce (and practice reading) consonant-vowel-consonant-vowel words.

Do You Want to Use a Motivational System?

- If you are using the PASTEL Star Chart, give the child one star for putting forth effort and a second star for reading 4 out of 5 of the created words (includes real and fake words) correctly.

Spin-A-Word - SPINNERS AND SPINNER ARROWS



Spin-A-Word Worksheet

Word 1: _____

Word 2: _____

Word 3: _____

Word 4: _____

Word 5: _____

Word 6: _____


Word 7: _____

Word 8: _____

Word 9: _____

Word 10: _____

APPENDIX N: Echo Me Intervention from PASTEL Guidebook

Echo Me		
Skill: Fluency	Sub-Skill: Accuracy and Prosody	
Grade Level: 2 nd -5 th	Estimated Activity Time: 15-20 Minutes	
About the Activity: By listening to an adult read aloud first, the child will learn and practice how to read accurately, at the right pace, and with expression.		
Material Preparation: <ol style="list-style-type: none">1. Select a text from Appendix A. Please review the information on page Appendix A-1 before choosing a text.2. Make two copies of the text, one for the adult and one for the child.		

Activity Instructions

Words in **bold** are sample instructions the adult can say to the child to explain the activity. Instructions are provided as a convenience; the adult can also choose to explain the activity in his/her own words.

1. Say to the child, **“I am going to read this paragraph aloud to you with accuracy, good speed, and expression. When I finish, I want you to read the same paragraph back to me. When you read, you should try to read each of the words correctly and try to read with good speed and expression.”**
2. Read a paragraph aloud to the child (approximately 40-60 words). Be sure to read at a pace only slightly faster than your child’s normal reading pace.
3. Have the child read the same text aloud, paying attention to accuracy, good speed, and expression.
4. If the child reads the paragraph aloud with no more than one error and reads with good speed and expression, continue to the next paragraph in the story; otherwise, reread the paragraph to the child and have her reread the paragraph aloud 1-2 more times.
5. While completing this activity, keep track of the words read incorrectly. At the end of the activity, practice 3-4 of the incorrectly read words using the following steps: 1) Say, **“Now we are going to practice some words you had difficulty with.”** 2) Point to the first incorrect word and read it aloud to the child, **“This word is _____.”** 3) Choose a 2-5 word phrase that includes the incorrect word and have the child practice reading that phrase 3 times aloud, **“Read this after I do...again...again.”** 4) Praise the child for practicing difficult words.

Click [here](https://youtu.be/cwCJ-sbZyPQ) to watch a video demonstration of the activity, or go to <https://youtu.be/cwCJ-sbZyPQ>

Possible Modifications

- Practice passages and paragraphs read during previous Echo Me sessions.

Do You Want to Use a Motivational System?

- If you are using the PASTEL Star Chart, give the child one star for putting forth effort and two stars for reading at least 2 paragraphs with accuracy, good speed, and expression.

APPENDIX O: Adapted Parent Mindset Scale

Adapted Parent Mindset Scale

Name: _____

Please read each question carefully and then select the answer choice that best reflects your beliefs at this time.

Question	Agree Strongly	Agree	Mostly Agree	Mostly Disagree	Disagree	Disagree Strongly
After a certain point in childhood, my child's ability to learn cannot improve.						
If my child is not good at learning activities, working hard won't make them good at it.						
My child can always improve their ability to learn, no matter how old they are.						
When my child seems to work too hard at learning activities, it makes me feel like they are not very smart.						
My child's ability to learn can only be substantially improved during a specific period in their development.						
My child is past the age at which they can significantly improve their ability to learn how to read.						

APPENDIX P: Parental Self-Efficacy for Helping the Child Succeed in School Scale



Parental Self-Efficacy for Helping the Child Succeed in School Scale

Description

The *Parental Self-Efficacy for Helping the Child Succeed in School Scale* is a 7-item scale which measures a parent's belief that they have the ability to help their child(ren) succeed in school. The survey was developed to be administered to parents, guardians, or family members raising children in Kindergarten through 8th grade.

Scale

Instructions: Please indicate how much you AGREE or DISAGREE with each of the following statements. Please think about the current school year as you consider each statement.

	Disagree very strongly	Disagree	Disagree just a little	Agree just a little	Agree	Agree very strongly
1. I know how to help my child do well in school.	1	2	3	4	5	6
2. I know if I'm getting through to my child.	1	2	3	4	5	6
3. I know how to help my child make good grades in school.	1	2	3	4	5	6
4. I feel successful about my efforts to help my child learn.	1	2	3	4	5	6
5. I have more influence on my child's grades than other children do.	1	2	3	4	5	6
6. I know how to help my child learn.	1	2	3	4	5	6
7. I make a significant difference in my child's school performance.	1	2	3	4	5	6

Citation

Hoover-Dempsey, K. V., & Sandler, H. M. (2005). Final performance report for OERI Grant # R305T010673: The social context of parental involvement: A path to enhanced achievement. Presented to Project Monitor, Institute of Education Sciences, U.S. Department of Education, March 22, 2005.

The Family-School Partnership Lab is part of the Psychology and Human Development Department, Peabody College, Vanderbilt University in Nashville, USA. More information about this scale can be found at:
<https://discoverarchive.vanderbilt.edu/handle/1803/7595?show=full>

APPENDIX Q: Adapted Child Mindset Scale

Adapted Child Mindset Scale





Name: _____

Please read each question carefully and then select the answer choice that best reflects your beliefs at this time.

Question	Agree Strongly	Agree	Mostly Agree	Mostly Disagree	Disagree	Disagree Strongly
After a certain grade in school, my ability to learn cannot improve						
If I am not good at a learning activity, working hard won't make me good at it.						
I can always improve my ability to learn, no matter how old I am.						
When I don't have to work very hard at learning activities, it makes me feel like I am smart.						
Once I reach a certain age, learning new things will be harder						
The harder I work at something, the better I will be at it.						
I am past the age at which I can really improve my ability to learn how to read						

APPENDIX R: Academic Motivation Scale

Academic Motivation

	NO! 	no 	yes 	YES! 
1. I have a positive attitude toward school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I like the challenges of learning new things in school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am confident in my ability to manage my school work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I work hard at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I try my best at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX S: Self-Efficacy Subscale of the Motivational and Self-Regulated Learning Questionnaire

Child – Motivational and Self-Regulated Learning Scale

Name: _____

Please read each question carefully and then select the answer choice that best reflects your beliefs at this time.

Question	Not At All True of Me	Not True of Me	Somewhat Not True of Me	Neutral	Somewhat True of Me	True of Me	Very True of Me
Compared with other students in this class I expect to do well.							
I'm certain I can understand the ideas taught in this course.							
I expect to do very well in this class.							
Compared with others in this class, I think I'm a good student.							
I am sure I can do an excellent job on the problems and tasks assigned for this class.							
I think I will receive a good grade in this class.							
My study skills are excellent compared with others in this class.							
Compared with other students in this class I think I know a great deal about the subject.							
I know that I will be able to learn the material for this class.							

APPENDIX T: IRB Exemption Certification Letter



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office 252-744-2914 · Fax 252-744-2284
rede.ecu.edu/umcirb/

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Samuel Robinson](#)
CC: [Christy Walcott](#)
Date: 1/23/2023
Re: [UMCIRB 22-000823](#)
Growth-mindset parent group intervention with the HELPS reading program

I am pleased to inform you that your research submission has been certified as exempt on 1/23/2023. This study is eligible for Exempt Certification under category # 1.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Ability Mindset Scale.docx(0.01)	Standardized/Non-Standardized Instruments/Measures
Ability Mindset Scale.docx(0.01)	Surveys and Questionnaires
Academic Motivation Scales.docx(0.01)	Standardized/Non-Standardized Instruments/Measures
Academic Motivation Scales.docx(0.01)	Surveys and Questionnaires
Assent Script(0.01)	Consent Forms
Diss Proposal(0.01)	Study Protocol or Grant Application
Dissertation Consent_rev1.docx(0.01)	Consent Forms
Motivational and Self Regulated Learning Scale .docx(0.01)	Standardized/Non-Standardized Instruments/Measures
Motivational and Self Regulated Learning Scale .docx(0.01)	Surveys and Questionnaires

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the