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Phonics Shed and *Spelling Shed*: Logic Model, Research Base, & Evaluation Plan

Prepared for EdShed by McREL International

May 2023

McREL project team

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Recommended citation: Kriescher, D.P.J., Johnson, H.E., & Jones, L.M. (2023). *Phonics Shed and Spelling Shed: Logic Model, Research Base, & Evaluation Plan.* McREL International.

This study evaluates the efficacy of commercial products, *Phonics Shed* and *Spelling shed*, developed by EdShed. The authors of this paper are employed by McREL International, a private 501(c)(3) nonprofit corporation specializing in research and evaluation services, which was contracted by EdShed to design and carry out the study. None of the researchers receive commission on sales of the products.

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- Analysis and alignment of curriculum, instruction, assessment, and standards
- Professional development, learning, and coaching for teachers, principals, and system leaders
- Research, data analysis, logic models, and program evaluations
- School improvement recommendations, action planning, implementation support, and technical assistance

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Introduction

EdShed decision makers are interested in understanding whether and how the company's evidence-based foundational reading program, *Phonics Shed*, contributes to reading development for K-2 students. As such, *EdShed* partnered with McREL to be eligible to meet Every Student Succeeds Act (ESSA) Tier 4 evidence requirement for phonemic awareness, phonics, and reading fluency. This document includes the logic model, research base, and evaluation plan needed to meet ESSA Tier 4 evidence standards.

The logic model (Figure 1) describes the specific change mechanisms that are expected to lead to intended outcomes and serves as a guide for *EdShed's* continuous improvement processes, including those tied with use of *EdShed's Spelling Shed* product. The research base provides a summary of the existing evidence that supports the theorized change mechanisms needed to reach the intended outcomes. Finally, the evaluation plan demonstrates an effort to study the effects of *Phonics Shed*. The purpose of the efficacy study is to determine the extent to which students' participation in the *Phonics Shed* curriculum is associated with improved reading scores. The evaluation plan is aligned to the ESSA Tier 3 evidence requirements and is eligible to generate "promising" evidence of *Phonics Shed* effectiveness.

Research Foundation & Logic Model

Through narrative and multisensory practices, the *Phonics Shed* provides a direct, explicit, and systematic curriculum designed to teach students to read. The logic model outlines the key inputs and activities of *Phonics Shed* that lead to the intended outputs and outcomes. Below is a summary of the research base that supports the theory of action that leads to the intended outcomes of the *Phonics Shed* K–2 curriculum. Next is a summary of the specific outcomes of *Phonics Shed* that align with The What Works Clearinghouse (WWC) Review Protocol for Beginning Reading Interventions Version 3.0 (September 25, 2014).

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Phonics Shed (PreK-2) and ***Spelling Shed*** (K-5) Curriculum Logic Model

Resources/Inputs

- ***Phonics Shed*** (PreK-2) and ***Spelling Shed*** (K-5) are standalone curricula which work together to support students' phonics and writing outcomes through the bi-directional relationship between learning reading and learning spelling
- These curricula are phased and sequenced in a way that front loads phonics and breaks down the basic components of reading and spelling, and continually re-exposes students to basics through its spiralized structure
- Lessons provide explicit instruction for scaffolded skills and strategies for students to use in sound/word recognition, as well as morphology and word origins
- Uses immersive stories that center developmentally friendly characters to engage students, as well as gamification and customizable competition and profile/avatar curation as rewards
- Lessons are aligned with student materials that are offered both off and online: (e)books, letter tiles, flash cards, games, and more
- Designed with pre-built or flexible planning weeks, content weeks, and assessment weeks for ease of teacher use, and progress monitoring tools to guide instruction

Activities

- Teachers follow the ***Phonics Shed*** and ***Spelling Shed*** curricula to deliver explicit Tier I instruction on reading and writing structures and activities
- Teachers customize (Tier I) instruction and identify students who need more support based on diagnostic assessments
- Students participate through ***Phonics Shed*** and ***Spelling Shed*** activities
- Teachers deliver lessons through stories, songs, characters, games, and movement
- Teachers can use ***Phonics Shed*** and ***Spelling Shed*** together, individually, or as a supplement to other curricula

Outputs

- Students engaging in ***Spelling Shed*** activities return to, build on, and apply foundations developed from ***Phonics Shed*** instruction
- Students are consistently exposed to the key concepts and skills needed to read and write; Students can identify morphemes and use that knowledge to decode and understand unfamiliar words
- Students are engaged in learning to read and write
- Student who are struggling to learn to read and write receive the support they need
- Students internalized the patterns and generalizations and can read and spell fluently

Outcomes

- PreK-5 students meet grade level benchmarks on internal diagnostics of phonemic awareness, phonological awareness, letter identification, decoding, word understanding, spelling, and writing
- PreK-5 students meet grade level standards on standardized tests of phonemic awareness, phonological awareness (phonics), letter identification, decoding, word understanding (under phonics outcomes), spelling, and writing skills
- PreK-5 students show growth in phonemic awareness, phonological awareness (phonics), letter identification, decoding, word understanding (under phonics outcomes), spelling, and writing skills

EdShed

Phonics Shed

Spelling Shed

Context:

- State Education Agencies (SEAs) and Local Education Agencies (LEAs rely on ESSA tiers of evidence to select evidence-based curricula
- Teachers and administrators' knowledge of the science of reading continues to develop
- Access to technology at school and home in today's flexible education climate
- ***Spelling Shed*** interacts with and supports activities and engagement in ***Phonics Shed*** during their overlap in K-2, after which ***Spelling Shed*** continues to build on foundations from ***Phonics Shed*** through 5th Grade

Theory of Action:

- Direct, explicit, and systematic early (K-2) reading instruction, vocabulary, letter and sound recognition, phonemic awareness and understanding, oral reading fluency, and frequency practice builds students' fundamental reading skills, which leads to comprehension and long-term literacy skill development
- Learning through narrative and multi-sensory activities allows students to make connections across lessons, be engaged in the material, and be motivated to develop their reading skills.
- Classroom-wide implementation supports foundational skill development but can be adjusted to meet group or individual needs with stations or specific activities to support struggling students.
- The bi-directional relationship between learning reading and learning spelling is supported by student participation in both ***Phonics Shed*** and ***Spelling Shed***

Theory of Action (Processes)

Narrative Driven

Storytelling is a well-known practice for both teaching literacy and engaging students. There is a body of evidence to suggest that storytelling has been associated with improved comprehension and vocabulary (Kirsh, 2012; Lenhart et al., 2020) as well as student's on-task behaviour (Lenhart et al., 2020). It is theorized that listening to stories is something we innately know how to do as humans and therefore it is something that is easy for us to be attentive to (Dehaene, 2009; Schatt & Ryan, 2021). **Capitalizing on the learning and motivational benefits of storytelling, *Phonics Shed* delivers reading instruction through a narrative driven approach.** Each *Phonics Shed* lesson is delivered through a storybook which introduces a character that is linked to the grapheme-phoneme correspondence.

Multi-sensory Learning Practices

Engaging students in learning through multi-modal activities may be an important component of effective teaching strategies in a variety of domains. This technique has also been explored within phonics and literacy and is gaining traction for related outcomes, including for early readers, English language learners, and students identified as at-risk for reading difficulties (Bøg et al., 2021; Langille & Green, 2021; Pesce, 2012). Such practices have included designing activities through visual, auditory, and kinesthetic-tactile modes by using flashcards with grapheme phoneme pairing, identification of sounds with symbols, mindful awareness of articulatory muscles for vocalization, skywriting, tapping with syllables, and songs among many others (Langille & Green, 2021; Nasrawi & Al-Jamal, 2017). Such practices have been associated with improved reading performance, oral fluency, phonemic awareness, decoding, and comprehension skills (Bøg et al., 2021; Langille & Green, 2021). **In working towards helping students develop deep and meaningful use of language in these phonics outcomes, *Phonics Shed* employs mutli-sensory learning through activities such as letter tiles, songs, stories, flashcards, and more.**

Outcome(s)

Phonics

Understanding the alphabetic system, or the letter-sound correspondences and spelling patterns, of the language you are learning to read is a key part in learning how to read (Castles, Rastle, & Nation, 2018; NICHD, 2000). Phonics is the instruction in how letters and sounds correspond as well as how that knowledge can be used to decode and pronounce words (Shanahan, 2005). In addition, mastering how letters and sounds correspond is also essential to being able to spell, and therefore, write (Munger & Murray, 2017). There are many different models for teaching phonics, but the large umbrella of systematic phonics instruction is defined by a sequential set of phonic elements that are taught explicitly and systematically, with the goal of providing learners with enough information to comprehend written language (NICHD, 2000). There is a body of evidence suggesting that **systematic phonics instruction, a central component of *Phonics Shed*, is associated with a**

bigger growth in reading compared to non-systematic phonics instruction and no phonics instruction (Ehri et al., 2001; NICHD, 2000).

Spelling

Spelling, another key component of learning to read and write, is linked to differences in decoding ability (Moats, 2019; Munger & Murray, 2017). Students learn to spell by building upon the same principals used when teaching phonics, such as letter-sound correspondences and phonemic awareness (Ehri, 2014; Galuschka et al., 2014; Goswami & Bryant, 2016). Thus, learning to read and spell are highly interconnected skills. Some evidence to suggests that students need explicit spelling instruction rather than relying on the assumption spelling skills develop from reading instruction (Graham & Santangelo, 2014; Oakley & Fellowes, 2016). **As students move up in grade level, *Phonics Shed* lessons increase in intensity to allow for more time to incorporate *Spelling shed* for explicit spelling instruction for students' literacy skill development.** Together, *Phonics Shed* and *Spelling Shed* contribute to students being better readers and writers.

Evaluation Design

Purpose

The primary purpose of the evaluation is to provide information regarding the extent to which the *Phonics Shed* curriculum is associated with K-2 students' phonics ability. This addresses the big picture question of whether the platform is improving the intended student learning outcomes of early literacy. The What Works Clearinghouse (WWC) Review Protocol for Beginning Reading Interventions Version 3.0 (September 25, 2014) guided the design of the efficacy study. McREL designed the study so that *Phonics Shed* could be eligible to meet ESSA Tier 3 evidence standards. A secondary goal of the proposed study is to better understand how *Phonics Shed* is being implemented in classrooms.

Evaluation Questions

The following questions will guide the efficacy study:

1. How is *Phonics Shed* being implemented by teachers?
2. Is *Phonics Shed* use and performance associated with greater reading outcomes?
    a. How are teacher implementation characteristics of *Phonics Shed* use associated with phonics outcomes?

Through answering the above evaluation questions, McREL will provide greater insight into the effects of *Phonics Shed* and provide additional insight into design choices for continuous improvement of the product. Ultimately, this could result in a product less burdensome to implement, better target the student reading outcomes, and improve the product's efficacy for the student reading outcomes.

The research team will explore elements of teacher implementation of *Phonics Shed* including (a) how frequently multisensory components for instruction and activities are used, (b) adherence or deviation from the supplied schedule of curriculum implementation, (c) whether teachers use integrated performance assessments and whether they adjust instruction from their information, (d)

whether *Phonics Shed* is being used as the primary or supplemental curriculum (including alongside *Spelling Shed*), (e) relative frequency of non-digital curriculum material use compared to digital platform materials and activities, (f) and teacher platform use onboarding or other implementation fidelity and accountability measures.

Sample and Recruitment

McREL intends to sample from schools with current K-2 classroom-based *Phonics Shed* users across the United States. McREL will support *EdShed* in developing recruitment materials based on design and data collection needs identified by McREL researchers. *EdShed* will supply McREL with a roster of *Phonics Shed* participating schools and K-2 classrooms from which to create a sampling frame. From this roster, McREL researchers will use purposive cluster sampling to select schools with greater numbers of participating K-2 classrooms and students from which to address relationships with reading outcomes across levels of implementation and *Phonics Shed* performance.

In order to be eligible for ESSA Tier 3 evidence, a well-designed correlational study statistically controlling for selection bias is needed. In order to accomplish this, covariates from available student, classroom, and school characteristics will be included in models predicting reading outcomes from levels of implementation and *Phonics Shed* performance. To meet ESSA Tier 3 standard, the sample will include a minimum of 100 K-2 students.

Teachers using *Phonics Shed* identified as potential participants will be contacted through *Ed Shed*'s own listserv, and respective districts will be contacted for relevant information discussed below in Data Collection and Measures.

Data Collection and Measures

McREL proposes collecting, from the district, all participating students' 2024–25 DIBELS assessment results. In addition, district will be asked to share information about students' grade, gender, race/ethnicity, Individualized Educational Plan (IEP) status, free and reduced-price lunch status, and English Learner (EL) status. All data will be de-identified by the school, but McREL will need to be able to connect students to participating teachers. See Appendix A for the data elements that will be requested.

In addition, McREL proposes administering a survey to teachers to determine how they used the curricula during the 2024–25 school year. To be less burdensome on teachers, the survey will be embedded in the teachers' annual review survey. Specifically, evaluators will use the survey to identify how well teachers adhered to the curricula schedule, how frequently the curricula, supplemental material, and diagnostic assessments were used, as well as barriers and supports to implementing the curricula as intended.

Table 1. Evaluation Questions, Data Sources, and Methods

Evaluation Questions	Data Sources	Data Collection Methods
How is Phonics Shed being implemented by teachers?	• Teachers	• Teacher survey (end of school year)
Is Phonics Shed use and performance associated with greater reading outcomes?	• Teachers • School Data	• DIBELS assessment data • Student demographics • Teacher survey (end of school year)

• How are teacher implementation characteristics of Phonics Shed use associated with phonics outcomes?		

Analysis Plan

Evaluation Question 1

To answer the first evaluation question, McREL will use the end of year teacher survey to describe differences in how teachers implemented *Phonics Shed* during the 2024-2025 school year. Likewise, a descriptive analysis of teacher survey responses will be used to unpack factors that facilitate and impede the implementation of the *Phonics Shed* curriculum. Elements of implementation for which questions will be included on the survey involve: (a) how frequently multisensory components for instruction and activities are used, (b) adherence or deviation from the supplied schedule of curriculum implementation, (c) whether teachers use integrated performance assessments and whether they adjust instruction from their information, (d) whether Phonics Shed is being used as the primary or supplemental curriculum (including alongside *Spelling Shed*), (e) relative frequency of non-digital curriculum material use compared to digital platform materials and activities, (f) and teacher platform use onboarding or other implementation fidelity and accountability measures.

Evaluation Question 2

In order to address the evaluation question regarding the association between *Phonics Shed* use and reading outcomes, the analytic approach will depend on the available sample (see Appendix B for alternative sampling and analytic strategies). With a sample of at least 100 students, a multiple linear regression will be used to predict the phonics performance outcome captured by the DIBELS assessment test. Predictor variables will include an indicator of *Phonics Shed* implementation or non-implementation, variables capturing degree of implementation (see evaluation question 1 for details), as well as end of year *Phonics Shed* performance average. Covariates will also be included to control for student, classroom, and school characteristics (see Appendix A). Examining the contributed variance explained by the model terms describing implementation will also demonstrate the relationships between the characteristics of *Phonics Shed* implementation and phonics outcomes.

Timeline

Activities	Study Months					
	1	2	3	4	5	6
Project Management						
Develop and submit a Data Sharing Agreement with each study district		X				
Create and submit McREL Institutional Review Board (IRB) documentation		X				
Create and submit district IRB documentation		X				
Survey/Interview Protocols						
Design teacher survey items	X	X				
Pilot test survey items with individuals similar to the target respondents	X	X				

Finalize the survey	X	X				
Data Collection and Analysis						
Administer teacher survey			X			
Collect extant student data from districts' data and accountability offices		X	X	X	X	
Analyze all data					X	
Deliverables						
Draft final report						X
Draft and provide a summary of findings for district leaders						X

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Appendix A

Table A1. Proposed Data Elements to be Requested from Schools

Variable	Example data coding or description
Teacher Data Elements	
School ID	Unique school ID
Teacher ID	Unique teacher ID
Teacher Email	Teacher's primary school address
Teacher *Phonics Shed* User Status for study school year	0 = non-*Phonics Shed* User 1 = *Phonics Shed* User
Student Data Elements	
Student ID	Unique student ID
Teacher ID	Students' teacher for study school year
Pupil premium	0=not eligible 2=eligible
Student race/ethnicity	Student's race/ethnicity
Student IEP status	0=does not qualify for an IEP 1=qualifies for an IEP
Student EL status	0=not EL 1=EL
DIBELS Assessment Data	End-of-year DIBELS assessment data

Appendix B

Alternative Analytic and Design Strategies Dependent on Sample Size

350 students from more than one school & non-Phonics Shed users

With a sample of at least 350 students across more than one school and including sufficient data for non-*Phonics Shed* users, propensity score matching may be used to assist in comparing *Phonics Shed* users to non-users for differences in the DIBELS assessment through repeated measures ANCOVA. Propensity scores would be created from student, classroom, and school characteristics for matching between the treatment and comparison groups. The included predictor variable would include membership to a treatment or comparison classroom. Covariate variables would include all those described in the multiple linear regression model. This may be eligible for Tier 2 ESSA evidence.

625 students from at least 20 classrooms, more than one school, and non-Phonics Shed users

With a sample of around 625 students from at least 20 classrooms with around 25 student each and across more than one school (8 treatment and 12 comparison classrooms), hierarchical linear modeling may be used alongside propensity score matching in order to better account for variance within and across classrooms and students associations with phonics outcomes and demonstrate associations with *Phonics Shed* use and phonics outcomes as described by the DIBELS assessment. The included predictor variable would include membership to a treatment or comparison classroom. Covariate variables would include all those described in the multiple linear regression model. This may also be eligible for Tier 2 ESSA evidence.