Amplify Literacy Learning:

Research-based PD that Comes Alongside Classroom Teachers to Increase the Impact of Evidence-based Literacy Instruction

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NARRATIVE

This EIR mid-phase project, *Amplify: Increasing the Impact of Evidence-based Literacy Instruction (Amplify),* meets **Absolute Priority 1** (field initiated innovation that promotes evidence-based literacy aligned with national efforts to improve literacy achievement with direct benefit for all students, but especially high-need students, through effective literacy instruction aligned with the science of reading and rigorous evaluation) to refine and expand the use of practices with prior evidence of effectiveness. This proposal is submitted by a **rural-serving applicant** in accordance with EIR rules.

Amplify is a partnership between the **University of Missouri** (MU; an AAU, public research-intensive, rural-serving, land-grant institution), which includes the **College of Education and Human Development (CEHD)**, and the **Missouri Prevention Science Institute**, which is an independent center housed in the Division of Research, Innovation & Impact. We have also partnered with rural school districts in Missouri, including **Galena R-II School District (LEA)** and the **MU Partnership for Educational Renewal**. The **Kansas City Audio-Visual (KCAV)** and **Swivl** are our corporate partners, and they are providing a 10% match throughout the grant (see Appendix C for Letter of Support).

The partners on this project have a history of successful completion of ED-funded research (see Section B3). The **CEHD professional development (PD) team** consists of award-winning and nationally recognized reading researchers and professional development experts, while the **Missouri Prevention Science Institute (MPSI)** has an established record for evaluating large nationally funded projects. A rigorous, external evaluation designed to receive a What Works Clearinghouse (WWC) rating of *Meets WWC Standards Without Reservations* will be conducted.

A. SIGNIFICANCE

A1. Overview

The goal of *Amplify* is to increase (intensify, strengthen) the impact of curricula aligned with **evidence-based literacy instruction (EBLI**, e.g., Science of Reading). *Amplify* builds on a successful early-phase EIR project funded in 2021, *Talk to Read, A Culturally Responsive Approach to Literacy Recovery* [redacted]. The early-phase project provided professional development (PD) to 2nd-grade teachers to improve literacy learning achievement of high needs students in primarily high-poverty, rural schools. The current proposal will expand and add innovations to the early-phase PD model (see Section A5). This is a timely project because our focus is to promote evidence-based literacy, aligned with national efforts to improve literacy achievement nationwide. *Amplify* will directly involve approximately 6,400 4th and 5th-grade students, 320 teachers, and 80 school administrators in the central U.S., with the possibility of formulating a PD model for scale to tribes, tutoring agencies, and other states. We seek to increase the number of 4th and 5th-grade teachers who have the capacity to improve literacy achievement.

A2. National Significance

In 2024, the National Report Card (see NCES) indicated that there is a crisis in the teaching of reading, with 69% of fourth graders and 70% of eighth graders scoring below proficient levels in reading. Over 40 states have taken action to require schools to use research-based practices (Schwartz, 2025). Thus, state departments of education are requiring school districts to adopt reading curricula that are aligned with EBLI, which requires **explicit, systematic, and intentional instruction in phonological awareness, phonics decoding, oral language, vocabulary, language structure, reading fluency, reading comprehension, and writing.**

The ability to read is a prerequisite for successfully completing high school and college and securing gainful employment. Reading in early grades is especially important, as elementary children who lack reading proficiencies often face a wide range of challenges in later grades. Specifically, these students are four times more likely to drop out of high school (Casey Foundation, 2013; Hernandez, 2011; Lesnick, 2010) and have an increased likelihood of experiencing social challenges including joblessness and incarceration (Greenberg, 2007; NCES, 2024). Further, illiteracy in general has been found to be a major contributor to economic hardship, the spread of disease, and political instability (U.S. AID, 2014).

A2i. Engagement and Self-Efficacy Promote Literacy Learning

As early as first grade, students who struggle to read also struggle with academic engagement, self-efficacy, and self-esteem. Research indicates that engagement is one of the strongest correlates to reading achievement (Guthrie & Wigfield, 2000; McGeown & Smith, 2024). Conversely, disengagement has a high correlation to low self-efficacy and low self-esteem with a negative impact on academic achievement (Anderson et al., 2021). *Amplify* comes alongside teachers to assist with engaging learners in EBLI.

A2ii. Time on Task Promotes Literacy Learning

There is consistent evidence that time off task contributes to loss of instructional time with a negative impact on learning (Goodwin et al., 2013). On the other hand, students who are engrossed in their learning tend to have less time off task. Two students can sit in the same classroom and experience vastly differing amounts of time on task. One can be so engrossed that they think about the topic throughout the day and go home to learn more. The other can be so disengaged that they never hear what the teacher said. By engaging learners in EBLI, *Amplify* seeks to maximize time on task.

A2iii. Transfer Reading Skills Promotes Literacy Learning

Cognitive studies indicate that human learning is highly contextualized (Bransford & Schwartz, 1999; Brown et al., 1989). Specifically, the human mind struggles to transfer learning from one context to another. This includes struggles to transfer **phonological awareness, phonics decoding, oral language, vocabulary, language structure, reading fluency, reading comprehension,** and **writing** from EBLI to new, unknown texts that students read during Math, Science, Social Studies, and Literature Studies, as well as at home for pleasure. Using *Amplify*, teachers **explicitly, systematically, and intentionally teach EBLI** within each learner's **vocabulary** and **background knowledge,** which enables students to recognize these reading skills within what is familiar to them (their own vocabulary and background), grasp the relevance of EBLI skills, and thereby transfer reading skills from what they know to new reading materials.

A2iv. Amplify Increases Teacher Efficiencies

EBLI typically occurs during a specified block of instructional time during a school day. During EBLI, students may attend whole-class and directed reading groups as well as complete individual practice exercises. While this instructional time is critical, it remains limited to the "reading block." *Amplify* increases teacher efficiencies by reinforcing EBLI skills across the curriculum. If students are working on **phonemic awareness and phonics knowledge** of r-controlled vowels during EBLI, using *Amplify*, teachers continue to work on r-controlled vowels as they read and write during Math, Science, Social Studies, and Literature. As described earlier, time on task increases learning. By reinforcing EBLI throughout the school day, learners increase their time on task, explicitly explore the relevance of reading skills across the curriculum, with increased transfer of EBLI skills from the reading block to reading across the curriculum.

A2v. Amplify Promotes Student Preparedness

We live in a digital culture. Reading and writing commonly occur while we use digital media. We read and write text messages, emails, social media, and websites. We read and listen to digital books. We search for information online as we shop, explore the latest news reports, and answer varied questions. Increasingly, we use AI-enhanced search engines and various forms of generative AI to brainstorm ideas and draft writings. The workplace that we prepare students to enter will most certainly require the proficient use of navigating and creating (reading and writing) digital media [redacted].

Amplify leverages dictation and AI technologies to support students as they use EBLI skills to write new renditions of their favorite literature and content area projects. Herein, *Amplify* prepares students to encounter, generate, skillfully navigate, and create (read and write) digital media. While involved in *Amplify*, students report that dictation and AI technologies become everyday generative tools that support EBLI [redacted], which prepares them for the AI workplace.

A3. *Amplify* is an Innovative Extension of an Evidence-based, Field-initiated Project

Amplify emerged from an evidence-based, field-initiated innovation that explored the feasibility of using dictation technologies to support high needs first-graders' development of **sight vocabulary**. Specifically, first-graders were invited to use dictation technologies to write new renditions of familiar poems, songs, and children's literature. They converted *Mary Had a Little Lamb* into *Gary Had a Slimy Toad* and *Five Little Monkeys Jumping on the Bed* into *Five Cute Kittens Lapping Up their Milk*. First-graders talked to dictation technologies, watched their oral vocabulary appear on the screen, and developed over **97% reading accuracy (proficient level)** for their dictated words. When their dictated words were compared with high-frequency word lists,

over half were on K-9th-grade lists, while the other 50% were absent. In other words, using dictation technologies, high-needs first graders developed proficient sight vocabulary for words within and beyond their grade level [redacted].

In addition, students who previously expressed academic frustrations reengaged in reading and writing. Some asked to continue to dictate their new renditions during recess and after school. (Both requests were denied.) Research indicates that the ability to read words by sight impacts fluency, the ability to use context clues and ultimately, comprehension (Catts et al., 2005; Ehri, 2005; Research indicates that the ability to read words by sight impacts fluency, the ability to use context clues and ultimately, comprehension (Catts et al., 2005; Ehri, 2005; Guthrie & Wigfield, 2000; McGeown & Smith, 2024; Snow et al., 1998).

Transcribing struggling readers' words to develop sight vocabulary and engagement is a strategy that has been used for nearly a century (Ashton-Warner, 1963; Nessel & Dixon, 2008). However, it is difficult to take dictation from every student in a classroom—until now. We all have devices in our pockets that take dictation. The innovative field studies indicated that dictation technologies can be used in classrooms to support sight vocabulary and re-engage students who struggle to read. Because these first-graders talked to dictation technologies, developed proficient sight vocabulary, and demonstrated enthusiasm for reading and writing, this innovation became known as *Talk to Read* [redacted].

A4. *Amplify* Modifies an Evidence-based Project to Serve a Different Population

Amplify modifies an evidence-based EIR Early Phase project to serve a different population, 4th and 5th-grade high-needs students. The EIR Early Phase project was developed and implemented by eMINTS PD (which is **"strongly endorsed" by WWC**) for 2nd-grade teachers in rural Missouri. *Talk to Read PD* extended the field-initiated studies from sight words and engagement to include

the explicit, systematic, and intentional teaching of EBLI within the context of each learner's dictated words [redacted].

Cognitive studies indicate that human learning is highly contextualized (Bransford & Schwartz, 1999; Brown et al., 1989). Specifically, the human mind struggles to transfer learning from one context to another. This includes struggles to transfer phonological awareness, phonics decoding, oral language, vocabulary, language structure, reading fluency, reading comprehension, and writing from one lesson to another, as well as from EBLI lessons to Math, Science, Social Studies, and Literature. *Talk to Read PD* included STAMP strategies (Slow release, Think Aloud, Markups, and Pacing awareness) so that teachers could express verbal reasoning to demonstrate the relevance of EBLI skills within their renditions and invite students to do the same. Finally, *Talk to Read PD* included opportunities for students to share their new renditions with classmates, schoolmates, family, and friends. Research indicates that sharing what you write bolsters engagement in spelling and language structure while increasing sight vocabulary, fluency, comprehension, and writing (Karchmer et al., 2005).

A5. *Amplify* Contributes New Knowledge and Understanding of Educational Challenges

Amplify contributes new knowledge and understanding of educational challenges in two ways. First, *Amplify* incorporates not only dictation but also generative AI technologies. We live in a digital culture. Reading and writing commonly occur while using digital media [redacted]. We read and write text messages, emails, social media, and websites. We read and listen to digital books. We search for information online as we shop, explore the latest news reports, and answer varied questions. On the other hand, AI can be used to cheat (e.g., write papers for users) and deceive (e.g., create deep fakes). AI can overwhelm teachers who have few resources to navigate the complexities and opportunities that AI creates [redacted]. Using *Amplify*

alongside EBLI, teachers and students will learn to partner with AI to meet and exceed state standards for 4th and 5th grade Language Arts (see Appendix J2, DESE ELA State Standards) while simultaneously incorporating **State Guidance for AI Education** (see Appendix J3, DESE AI Guidance for LEA). Our world is increasingly digital. *Amplify* will contribute new knowledge and understanding of educational challenges with regard to AI as a literacy learning partner as we prepare students to enter AI-driven workplaces.

Second, *Amplify* seeks to address barriers to scale by testing new components of the *Talk to Read PD* model. Specifically, *Talk to Read PD* used a **Train the Trainer** model. Data analysis revealed that recruitment was challenging, onsite coaching was expensive, and teachers needed local control to adapt *Talk to Read* to meet their needs[redacted]. *Amplify* needs further testing of a **Teacher Leader** model in which Teacher Leaders recruit within their own schools, provide onsite coaching, collaborate with school administrators, and maintain local control of how *Amplify* is implemented in their schools as they strive to maximize the impact of EBLI. (For additional information, see Section B.)

B. STRATEGY TO SCALE

B1. Unmet Demand for Broader Implementation & Strategies to Address Barriers to Scale

Scaling any program presents staffing, quality control, and travel challenges. The early-phase project identified five barriers (**unmet demands**) to scale, including the need for teacher leaders, efficient recruitment, less travel expense for rural schools to attend in-person PD, school administrator involvement, and knowledgeable staff to deliver the PD. *Amplify* will address these barriers using five strategies:

Strategy 1, PD for Teacher Leaders. An experienced and effective teacher-leader will be identified by school administrators and colleagues within each participating school. Teacher-leaders

will receive **3 days of PD** in mentoring skills and adult learning principles, in addition to the **6 days of teacher PD**. Teacher-leaders will serve as school-level mentors to (a) provide day-to-day coaching for other teachers to ensure the work continues between PD sessions and 6 in-class coaching visits per teacher, (b) guide the implementation team to create a clear vision and plan, (c) ensure the project is completed on time and within budget, (d) communicate regularly with stakeholders, and (e) celebrate successes.

Strategy 2, Collaborations with School Administrators. Administrators will (a) join Teacher Leader PD for **1 day** with breakout sessions specifically for administrators to (b) form an onsite collaborative network with teacher leaders and other administrators, (c) develop a deep understanding of *Amplify*, (d) ensure school practices support students' EBLI literacy achievement, (e) ensure quality of implementation, and (f) build capacity to come alongside teacher leaders and classroom teachers as they *Amplify* EBLI.

Strategy 3, School-based Implementation Team. Teacher leaders will recruit 2-4 colleagues who teach 4th or 5th grade to participate in *Amplify* and collaborate with school administrators to deepen administrative understanding. Thus, each school will have an implementation team that consists of a lead teacher, a school administrator, and participating 4th and 5th-grade teachers. The team will support one another, debrief with one another, and evaluate the utility of *Amplify* for increasing (intensifying, strengthening) the impact of their school's EBLI program.

Strategy 4, Teacher Leader Micro-Credential. To support sustainability and scaling, throughout participation, Teacher Leaders will develop a professional portfolio to demonstrate their ability to continue as a Teacher Leader within their school or district. They will document their understanding of *Amplify*, identify examples of classroom implementation, document samples of impact on EBLI, and create plans for sustained and scaled efforts. Successful completion of this

portfolio will lead to a Teacher Leader Micro-Credential for their continued participation in future implementations of *Amplify*. Thus, districts may expand *Amplify* to other schools within their district and on-board new teachers, reaching additional teachers and students.

Strategy 5, Hybrid PD Sessions, Modes, and Pacing. PD will be developed for in-person and online delivery. Each Implementation Team will determine what is best for them. Some may prefer to travel to a central location and focus exclusively on PD sessions while building team culture. Others may prefer to work together online. In addition, some modules will be completed synchronously and others asynchronously, thus accommodating the busy lives of teachers.

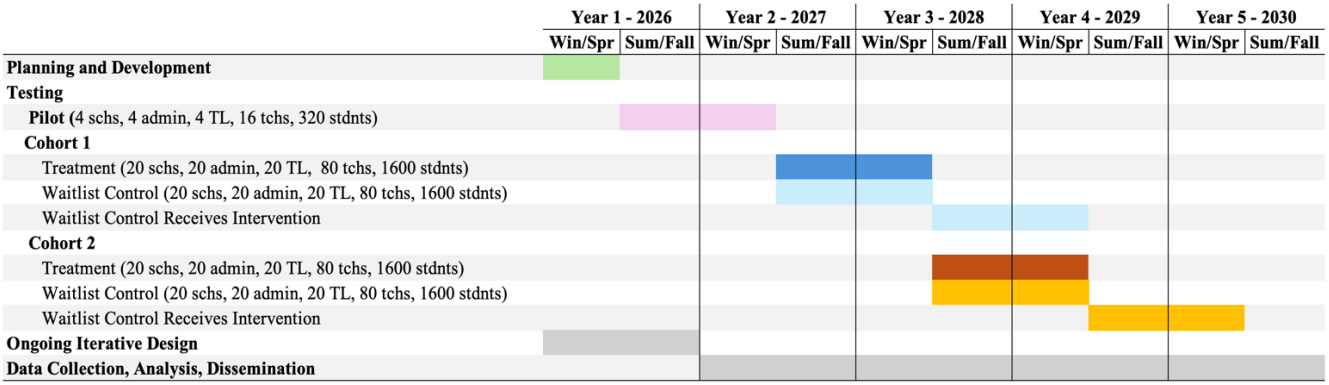
B2. Management Plan and Timeline

The project leadership team, comprised of MU reading researchers, *Amplify* PD experts, and project staff, will meet weekly to oversee project implementation, iterative design, and data collection (see Appendix B for Key Personnel Resumes). The leadership team will meet on alternating weeks with the external evaluation team (MPSI) and, as needed for specific tasks, with members of the Galena R-II School District (LEA). These meetings will ensure project activities are on time and implemented with quality (see Table 2 for more details).

The project will occur over five calendar years, January 2026 to December 2030. This includes a planning and development, and efficacy phase with a randomized waitlist control design (see Table 1).

Pilot Phase. In 2026, 20 teachers from four schools who serve approximately 320 students will participate in *Amplify*. The management team will use an iterative design process to collect feedback to make continuous improvements. During the first year, the team will work with field experts to design and create PD materials, a website, a self-paced course, and webinars. We will collect feedback for revisions and improvement from the pilot teachers.

Table 1. Project Timeline and Cohorts



Note: schs = schools, admin = school administrators, TL = teacher leaders, tchs = teachers, and stdnts = students

Efficacy Study. In 2027-2028 and 2028-2029, we will recruit a total of 320 teachers (160 in the intervention and 160 in the control group) and 80 teacher leaders (40 in the intervention and 40 in the control group) for two cohorts in predominantly rural schools in Missouri to participate in an RCT (see Section D). We will collect and analyze data and feedback from project records, surveys, interviews, and classroom observations for the efficacy trial. Waitlist control participants will receive the intervention a year after the intervention group.

Dissemination and Sustainability. Throughout all years of the project, but especially in year 5 (2030), the project team will complete data analysis and engage in dissemination. *Amplify* is designed to be sustainable by building strong partnerships with district administrators, building the capacity of teachers who can continue to implement this intervention, and developing a comprehensive monitoring and evaluation plan to make data-driven adjustments as needed to allow for continuous improvement.

Table 2. Project Management Plan and Timeline for Tasks

Milestones	Dates (M/Y)	Responsible Party
Planning & Management		
Submit IRB for approval; renew annually	1/26–3/26	PI, Eval

Hire postdoctoral researcher and GRAs (equitable hiring)	1/26	PI, Co-Is, PD Team
Establish management team and meeting schedule	1/26	PI, Co-Is
Monthly management and evaluation team meetings	Ongoing	PI, Co-Is, Eval
Develop project website, PD modules, AI-enhanced tools	1/26–9/26	PD Team
Fiscal management and DOE reporting	Quarterly	PI, Fiscal Officer
Pilot Phase (Development)		
Identify and onboard 4 pilot schools	1/26–6/26	PD Team, PI
Deliver 40 hrs of pilot PD and collect feedback data	7/26–6/27	PD Team, Eval, Co-Is
Conduct pilot data analysis and revise PD materials	6/27–8/27	Eval, PD Team, Co-Is
Prepare for efficacy phase recruitment	1/27–5/27	PI, PD Team, Co-Is
Efficacy Phase – Cohort 1		
Recruit and randomize 40 schools	1/27–5/27	PI, PD Team, Eval
Deliver Amplify PD (treatment schools)	7/27–6/28	PD Team, PI, Co-Is
Deliver Amplify PD (waitlist control)	7/28–6/29	PD Team, PI, Co-Is
Collect fidelity and outcome data (treatment & control)	6/27–6/29	Eval
Efficacy Phase – Cohort 2		
Recruit and randomize 40 schools	1/28–5/28	PI, PD Team, Eval
Deliver Amplify PD (treatment schools)	7/28–6/29	PD Team, PI, Co-Is
Deliver Amplify PD (waitlist control)	7/29–6/30	PD Team, PI, Co-Is
Collect fidelity and outcome data (treatment & control)	6/28–6/30	Eval
Analysis & Dissemination		
Clean and merge datasets (teacher, student, MAP)	6/27–8/30	Eval
Conduct final data analysis and prepare DOE report	8/30-12/30	Eval, PI
Disseminate findings via reports, briefs, and conferences	6/27-12/30	PI, PD Team, Eval, Co-Is
Conduct cost-effectiveness analysis	1/30-12/30	Eval

B3. Relevance and Demonstrated Commitment of Each Partner

The **University of Missouri (MU)** is a comprehensive, research-intensive university with over $500 million in research funding in 2024 and one of only 34 public U.S. universities selected for membership in the prestigious American Association of Universities (one of only two Missouri institutions to be selected). MU has fully staffed offices to handle fiscal, personnel, IRB, and other

research-related needs. The **MU College of Education and Human Development (MU-CEHD)** is ranked as #36 in the nation among public universities overall by U.S. News and World Report. In 2025, MU-CEHD exceeded $43.1 million in grant expenditures. MU-CEHD maintains an Office of Research Support with staff who handle fiscal and IRB for successful grant operations.

The Missouri Prevention Science Institute (MPSI), an independent MU Research Center, was founded in 2007 to bring community members and researchers together to help schools and families apply evidence-based practices. Since its inception, the MPSI has grown to over 30 faculty members from a dozen disciplines (e.g., school psychology, special education, counseling psychology, social work, educational leadership, statistics, measurement, and evaluation). Since 2010, MPSI has received over $60 million in funding, including $40 million in federal research grants from IES, the National Institute of Justice (NIJ), and the National Institute of Mental Health. It is also home to the National Center for Rural School Mental Health. MPSI has branches in Measurement, Methodology, Early Childhood, and Policy led by core faculty with abundant resources. MPSI is housed in the Division of Research, Innovation & Impact.

Primary Investigator/Project Director, [redacted] (EdD, Vanderbilt University) is a professor of reading education and literacy studies at MU. She served as PI for *Talk to Read*, an EIR Project on which this proposal builds [redacted]. A past President of the Literacy Research Association, [redacted] is an internationally recognized scholar whose awards include the International Boyer Award for Innovative Teaching, the International Literacy Association's top honor for Digital Literacies research, and multiple university-level teaching and service awards. She has over 25 years of external funding, 20 years of internal funding, 50+ funded assistantships, and a prolific publication record in top-tier journals and book publishers.

Project Co-Director, [redacted] (PhD, University of Colorado) is an Assistant

Teaching Professor of Reading and Literacy at MU. [redacted] will serve as primary PD materials developer and PD Team Leader. She has designed and led large-scale, evidence-based professional development for teachers, spanning several states and countries. Her PD portfolio includes *Shifting the Balance: Small Steps to Apply the Science of Reading in Your Classroom* and MoDESE collaborations to deliver EBLI PD. As PD Director, she brings proven capacity to scale research-based literacy instruction through cross-district and university partnerships that amplify teacher effectiveness and student learning.

Co-I, [redacted] (PhD, Iowa State University) is an assistant professor of reading education and literacy studies at MU with expertise in AI Literacies. [redacted] will oversee the use of AI to reduce teacher workload, increase AI-assisted reading and writing, and support teacher and learner AI efficacies.

Co-I, [redacted] (PhD, Stanford University) is director of the Prosocial Development and Education Research Laboratory (ProLab). She is experienced in leading complex, multi-year research projects, having received with colleagues over $52 million in grants from DHHS, CDC, NSF, ED and other agencies including field-based RCTs. [redacted] will contribute 10% FTE on the project, overseeing the development and deployment of ECHO sessions.

Independent External Evaluator, [redacted]**,** (PhD, MU) is an associate professor of Statistics, Measurement, and Evaluation in Education and is part of the Missouri Prevention Science Institute (MPSI), which is an independent center, with expertise in program evaluation, multilevel modeling (analysis of clustered/nested data), school climate, and the analysis of large-scale data. She will conduct an independent evaluation and will oversee human subjects compliance, refining evaluation measures and tools, coordinating data collection with schools, and disseminating results. [redacted] has been a PI, co-PI, or evaluator on over $12 million in projects

funded by the U.S. Department of Education, NSF, and the Spencer Foundation. She has also attended IES trainings on quasi-experimental designs, randomized controlled trials (RCTs), and economic evaluation (cost analysis). She will contribute 40% FTE.

Project Coordinator, [redacted] has experience recruiting schools/teachers, communicating with all research participants, hosting PD, creating curriculum, managing budgets and timelines of multiple grant-funded projects, and assisting with dissemination activities. She will contribute 100% FTE managing sub-award contracts, MOUs, reimbursements, budgets, and fiscal communications.

Two **Postdoctoral Fellows (TBD)** with expertise in math, prosocial education, and teacher PD will contribute 100% FTE to help with PD, project coordination, data collection and analysis, and dissemination. They will help supervise **Graduate Research Assistants (TBD),** who will also assist with the evaluation of the project. These individuals will be selected using fair and transparent hiring practices in accordance with institutional and federal equal employment opportunity standards.

Two **Adjunct PD Instructors (TBD)** with expertise in literacy instruction and PD for reading teachers will assist in delivering professional development and ECHO sessions, expanding project capacity while maintaining quality and fidelity. They will be paid [redacted]/year and will be selected using fair hiring practices.

Galena R-II School District (LEA), which serves a **rural population,** is one of our school district partners. Galena R-II School District has 37% of its population experiencing economic hardship, and of the 500 students enrolled, 70.1% are F/RLP eligible. Galena R-II represents the project's target high needs population.

Kansas City Audio-Visual (KCAV) and **Swivl** are our corporate partners. **MU-CEHD** is

our institutional partner. These partners have joined together to **provide 10% match for all five grant years** (see Appendix H for Demonstration of Match).

B4. Plan for Efficient Scale and Sustained Effectiveness

The *Amplify* project is designed for efficacy, scalability, and long-term sustainability across varied school contexts. By Year 5, the project will reach 80 schools, 320 teachers, 80 teacher leaders and approximately 6,400 students. Cost efficiency is achieved through a hybrid professional development model that blends asynchronous online learning modules, virtual ECHO coaching and AI-supported lesson planning tools, aimed at reducing travel and substitute costs compared to traditional PD delivery. The use of a teacher-leader model will ensure that districts can sustain implementation beyond the grant period, while lowering per-teacher training costs with each successive cohort.

To maintain effectiveness at scale, fidelity will be monitored through standardized EBLI observation rubrics and Swivl-recorded classroom videos. These data sources will be triangulated with teacher self-efficacy, engagement, and burnout metrics to detect early fidelity drift and to target support efficiently. Annual iterative improvement cycles based on the evaluation findings and teacher feedback will allow for the PD content, AI tools, and coaching protocols to be refined prior to expansion.

By the final project year, *Amplify* will be supported by a regional network of participating districts and partners to share PD resources, data insights, and implementation lessons through recurring convenings and virtual communities of practice. This structure supports sustainability without requiring additional oversight and enables ongoing delivery of high-quality literacy PD at an estimated lower cost than traditional PD programs. Through its combination of digital infrastructure, embedded coaching capacity, and continuous improvement, *Amplify* should provide a

scalable and efficient model for strengthening literacy instruction while maintaining fidelity and impact.

B5. Mechanisms to Broadly Disseminate Information and Resources

B5i. Websites, Social Media, and Press Releases

Dissemination will include a variety of media including a project website, the MU-CEHD Facebook community (with 6,000 followers), X Feed, and a LinkedIn Account. The MU-CEHD communications office will disseminate news releases as well as make direct contacts to state education agencies. We will partner with a professional agency, such as KindeaLabs, to produce and post to YouTube an engaging, brief, and informative video that describes the program and results. Our PI, co-PI, and co-Is are experienced at interviewing with print journalists, radio talk show hosts, and podcast hosts. We will create a project website to share results with the public and to serve as a media hub for our diverse communications efforts, linked to (1) the MU-CEHD website and (2) the Network for Educator Effectiveness website, which has 302 member districts and over 550,000 page views annually from educators. Collectively, our project team has significant social media reach, including X chats, Facebook groups, and LinkedIn.

B5ii. Practitioner and Research Conferences & Publications

The management team members have an active presence in state, national, and international venues, including AERA, ISTE, and LRA, ensuring broad visibility across both research and practitioner communities. Project findings will be disseminated through conference presentations, practitioner briefs, and peer-reviewed manuscripts. Anticipated outlets include *Journal of Literacy Research, Reading Research Quarterly*, and the *Reading Teacher* (among others). Practitioner-oriented articles and commentaries will be targeted to *EdWeek, Edutopia*, and similar platforms to ensure accessibility to classroom educators and district leaders. This dual dissemination plan will

promote a rapid translation of findings into practice while contributing to the national evidence base on literacy instruction, teacher professional learning, and scalable PD models.

C. QUALITY OF PROJECT DESIGN

C1. Quality of the Logic Model

Figure C1 provides the logic model for *Amplify*. Research supports the linkages in the framework (see Section A and Appendix G).

Table 3. Logic Model for *Amplify*

Inputs	Activities	Outputs	Outcomes
Resources -Early Phase TTR Classroom PD -Staff Expertise, Prosocial Lab, Missouri Prevention Science Institute -Classroom tablets with dictation	**Development** -Refine TTR for 4th-5th grade contexts -Design and pilot AI-enhanced literacy tools -Develop PD modules -Establish implementation infrastructure -Conduct pilot testing in four schools **Implementation** -Deliver *Amplify* PD to treatment schools -Provide online training modules (PD) for teachers and administrators	**School** -Develop a school-specific *Amplify* implementation plan -Receive technology -School leaders participate in administrator PD sessions -Establish a regional *Amplify* Learning Network **Teacher**	**Short** -Teachers demonstrate increased knowledge and skill in the Science of Reading and EBLI -Teacher report higher level of self-efficacy -Students show greater engagement and persistence -Students report increased self-efficacy **Medium** -Teachers demonstrate high-fidelity of implementation

and AI capabilities -Online PD platform and ECHO virtual coaching system -Partner school districts	-Implement teacher-leader coaching model -Conduct AI-integrated classroom literacy instruction -Provide ongoing coaching and ECHO sessions -Carry out RCT and collect MAP scores -Complete evaluation and cost-effectiveness results **Improvement** -Refine and scale PD materials -Teacher feedback interviews/focus groups -Conduct implementation team meetings -Support schools with embedding *Amplify*	-Complete *Amplify* PD -Complete online training modules -Earn micro-credential in Literacy Leadership and Coaching -Participate in reflective practice communities -Use AI-assisted planning tools **Student** -Complete EBLI lessons -Produce individual writing portfolios	-Teacher-leaders sustain coaching cycles in their schools -Students transfer literacy skills across subjects -Students exhibit gains in literacy engagement and self-efficacy **Long** -Teacher turnover and burnout decreases -Districts adopt a sustainable teacher-leader PD model -State and regional partners adopt *Amplify* -Students achieve significant and sustained literacy gains on MAP -Students display long-term improvements in digital literacy, and engagement
Contextual Moderators -Rural and geographic isolation such as staffing shortages and PD travel barriers. Teacher-leader model may offset these challenges.			

-Under resourced schools may have fewer resources and higher student mobility -Prior exposure to other literacy initiatives could strengthen or dilute *Amplify's* impact depending on alignment -Schools with technology and infrastructure, such as reliable broadband and IT support, may be more able to implement *Amplify e*ffectively

C2. Goals, Objectives, and Outcomes are Specified and Measurable

As seen in Table C2, *Amplify* establishes four interrelated goals that are clearly defined, measurable, and aligned. Each goal includes ambitious, yet attainable objectives that map directly onto the project's logic model (see Section C1), ensuring strong relationships among inputs, activities, outputs, and outcomes. The targets are quantifiable and time-bound, focusing on (a) implementing *Amplify* with fidelity across 80 schools; (b) improving teacher knowledge, instructional practice, and wellbeing through evidence-based literacy PD; (c) increasing student engagement, vocabulary, comprehension, and writing achievement as measured by the Missouri MAP ELA assessment; and (d) building sustainable district and state capacity through teacher-leader networks and cost-effective professional development. All objectives are designed to yield statistically rigorous, WWC-eligible evidence within the five-year project period (see Section D1).

Table 4. Goals, Objectives, and Outcomes

Goal 1. Implement *Amplify* with Fidelity
1.1. Refine and adapt the Talk to Read model for 4th and 5th grade contexts by the end of Year 1, validated through pilot testing in at least four schools 1.2. Deliver *Amplify* PD and ongoing ECHO coaching to 320 teachers and 80 administrators across 80 schools

1.3. Ensure ≥90% of participating teachers meet fidelity thresholds of the EBLI observation rubric by the end of each implementation year 1.4 Establish functioning implementation teams in all treatment schools, with ≥80% meeting monthly during Years 2-4
Goal 2. Increase Teacher Knowledge, Efficacy, and Instructional Practice in EBLI
2.1 Increase teachers' knowledge of the Science of Reading components and EBLI strategies, as evidenced by statistically significant gains on PD assessments ($p < .05$) between pre- and post-PD 2.2 Increase teacher self-efficacy scores by ≥.3 SD on validated scales after one year of PD participation 2.3 Increase teachers' use of cross-curricular literacy integration (STAMP strategies) by > 25% from baseline 2.4 Reduce teacher burnout indicators by 15% relative to comparison schools by Year 5.
Goal 3. Improve Student Engagement, Self-Efficacy, and Literacy Achievement
3.1 Increase student engagement and literacy self-efficacy scores by > 0.30 SD after one year of exposure to *Amplify* 3.2 Demonstrate statistically significant gains ($p < .05$) in overall MAP ELA sale scores for treatment students compared to the control 3.3 Demonstrate greater gains on MAP reporting categories for Reading Literary Text, Reading Informational Text, and Language/Vocabulary domains (exploratory) 3.4 Improve the quality of student writing portfolios, as measured by project-developed rubric aligned to MAP constructed-response expectations
Goal 4. Build Sustainable District and State Capacity for Literacy Improvement
4.1 Certify 40 teacher leaders through *Amplify* micro-credentials by Year 4

4.2 Develop a cost-effective PD model with a cost-per-student improvement ratio ≥20% lower than comparable PD programs 4.3 Disseminate results through peer reviewed publications and regional/national presentations 4.4 Partner with >2 state or regional literacy networks to integrate *Amplify* PD modules into ongoing professional learning efforts

D. QUALITY OF THE PROJECT EVALUATION

D1. Evidence to Meet WWC Standards without Reservations

MPSI will conduct an independent evaluation of *Amplify* to generate evidence of the program's effectiveness that is eligible to receive the What Works Clearinghouse (WWC) rating *Meets WWC Standards without Reservations* (see Table D1). Research questions (RQs) 1-3 address core causal student and teacher outcomes, RQs 4 and 5 address the moderators, and RQ 6 addresses cost and sustainability.

Table 5. Research Questions, Alignment, and Data Sources

Research Question	Aligned Project Objectives (from Table C2)	Primary Data Sources
1 What is the impact of *Amplify* on students' literacy achievement, including vocabulary, reading comprehension, and writing, compared to business-as-usual instruction? (Confirmatory)	3.1 Increase student engagement/self-efficacy 3.2 Demonstrate statistically significant gains on MAP ELA scale scores 3.3 Show gains on MAP reporting categories (vocab, reading literacy, informational text) 3.4 Improve student writing portfolio quality	• MAP ELA scale scores • MAP ELA reporting categories (vocab, reading literacy, informational text) • Student writing portfolios (rubric-scored) • Student engagement/self-efficacy surveys

2	To what extent does participation in *Amplify* increase teachers' EBLI knowledge and self-efficacy and reduce burnout relative to control teachers? (Confirmatory)	2.1 Increase EBLI knowledge and SoR understanding 2.2 Increase self-efficacy 2.3 Increase cross-curricular EBLI use 2.4 Reduce teacher burnout	• Teacher PD knowledge assessments • Teacher self-efficacy survey • Teacher burnout survey • EBLI observational rubrics • Coaching logs and ECHO participation records
3	Does the fidelity and quality of *Amplify* implementation mediate the relationship between teacher participation and improvements in student engagement and literacy outcomes? (Exploratory)	1.3 ≥90% teacher meet EBLI fidelity 3.1 Increase student engagement/self-efficacy	• Implementation fidelity rubrics • Coaching logs, ECHO attendance • Teacher-reported practice integration • Student engagement surveys and MAP ELA scores
4	Do school-level contextual factors, such as rurality, technology infrastructure, and leadership support, moderate the relationship between *Amplify* on teacher and student outcomes? (Exploratory)	Contextual moderators (school-level) • Rurality and travel barriers • Leadership support and school climate • Technology infrastructure	• School and district level DESE data • Technology readiness index • Principal leadership support scale • MAP ELA and teacher outcomes
5	Do teacher- and student-level characteristics, such as baseline EBLI knowledge, teacher self-efficacy, or student reading proficiency, moderate the effectiveness of *Amplify* on	Contextual moderators (teacher- & student-level) • Teacher experience, baseline EBLI knowledge • Student baseline MAP ELA status, English as a	• Baseline teacher PD scores • Student baseline MAP ELA scores and demographics

	implementation fidelity and literacy gains? (Exploratory)	second language status, other student demographics	
6	What is the cost-effectiveness of *Amplify* relative to business-as-usual PD, and to what extent do participating schools demonstrate capacity to sustain the teacher-leader model and AI-enhanced literacy supports? (Confirmatory)	3.1 Certify teacher-leaders 3.2 Develop cost effective PD model 4.4 Partner with literacy networks	• Project financial records and PD cost tracking • Cost-effectiveness ratio • Sustainability interviews • MOUs and adoption plans from partner LEAs

The efficacy evaluation is structured to *Meet WWC Standards without Reservations.* This rating is anticipated because the study design minimizes threats to internal validity, including (1) low attrition at both the school and student levels, and (2) limited risk of bias from participants joining or leaving after randomization. Drawing on prior experience conducting large-scale school-based randomized controlled trials (RCTs), we anticipate school attrition to remain below 20%, with minimal changes in student and teacher composition across study years.

Because randomization occurs at the school level and the primary analytic unit is the student, teacher professional development activities are not expected to change student mobility decisions, which is a potential source of bias noted in the WWC *Procedures and Standards Handbook* (2022). To address any residual risk related to teacher turnover, the evaluation will estimate intention-to-treat (ITT) effects for all teachers and students assigned to treatment and control conditions at the time of randomization. Students and teachers who enter after random assignment will be excluded from the analytic sample in accordance with WWC Version 5.0 procedures. Rosters collected at baseline will be used to define the ITT sample, and outcome data

will be gathered for all originally assigned participants, regardless of subsequent participation status, to preserve the integrity of the experimental design.

Analyses will adjust statistically for baseline measures and covariates identified by WWC to improve precision and account for pre-existing differences. The primary analytic approach will use analysis of covariance (ANCOVA), controlling for teacher demographic characteristics (e.g., experience, gender, race/ethnicity). As a sensitivity check, we will also estimate difference-in-differences models, which provide robustness at the cost of some statistical power (McKenzie, 2012). If any outcomes exceed WWC attrition thresholds, baseline equivalence on required covariates will be demonstrated and used as statistical controls.

Program impacts on teacher and student outcomes will be analyzed using multilevel models that nest students and teachers within schools, with randomization blocks included as covariates. Confirmatory impact models (Research Questions 1–2) will adjust for pre-intervention measures of key outcomes, while exploratory models (Research Questions 3–5) will examine mediating and moderating effects. State standardized literacy assessments, which WWC classifies as valid and reliable outcome measures, will serve as the primary indicators of student achievement. These data are expected to have minimal missingness, increasing the likelihood that this evaluation will produce policy-relevant evidence eligible for a WWC *Meets Standards Without Reservations* rating. See Appendix J for more details.

D1.i. Sample and Statistical Power

We estimate that approximately 80 schools, 80 school administrators, 80 teacher leaders, 320 teachers, and approximately 6,400 students will participate in the RCT during the five years of this project. In addition, we also estimated 10% teacher attrition, which has been included in the power analysis. Using the PowerUp! software (Dong and Maynard, 2013), we anticipate a

minimum detectable effect size (MDES) of .15 for student reading achievement (confirmatory outcome) and .29 for teacher self-efficacy and reduced burnout. We assumed power of .80, a Type-1 error rate of .05, and reasonable values for *ICC,* R^2, and other parameters (see Appendix J for details). The effect sizes are within the range of other similar interventions (Martin et al., 2009; Meyers et al., 2016).

D1.ii. Randomization

The evaluator will randomly assign 40 schools (excluding the 4 pilot schools) across two cohorts into either the *Amplify* intervention or control group using R software. School-level (rather than teacher-level) assignment will be used to minimize risks from contamination or treatment crossover. To minimize student mobility related to treatment status, we will ask participants to not share their treatment status outside the study. In rural areas with only one elementary school per district, we will randomize by district blocked by geographic area, with secondary blocks, if needed, based on characteristics such as student free or reduced-price lunch eligibility.

D1.iii. Data Collection Plan

Survey data will be collected online using Qualtrics. Measures will be collected in both the fall and spring for each cohort of students and teachers to measure change both within (i.e., fall to spring scores for both groups separately), and between groups (i.e., comparing fall and spring scores of the intervention group to fall and spring scores of the control group). In addition, in-class observations will be collected once in the fall and once in the spring using Swivl technology. For more information about the measures, see Appendix J.

D1.iv. Data Analysis Plan

In the efficacy phase, to determine whether *Amplify* caused a change in student scores on MAP ELA test scores (confirmatory outcome), while accounting for nesting within the data

(Bloom, 2006), the evaluator will execute a three-level multisite cluster RCT (level 1 = students, level 2 = teachers, and level 3 = schools) with district-blocks as fixed effects. This impact model will include an indicator of treatment status, student-level covariates, school characteristics, and school and student random effects. If data is missing, we will use multiple imputations using the Multivariate Imputation by Chained Equations (MICE) package in R (van Buuren & Groothuis-Oudshoorn, 2011). WWC topic-area review protocols will be used to calculate and report all statistics (e.g., sample sizes, baseline equivalence, and standardized mean difference).

D1.v. Moderation and Mediation Models

The evaluator will perform regression-based analyses to determine whether *Amplify* was associated with changes in teacher outcomes (secondary) and how student and teacher outcomes may vary across contexts (exploratory). Differential impact on confirmatory outcomes by student moderators, such as English language learning status, will be assessed. These moderation models will indicate the degree to which the program can reduce disparities in key outcomes. Mediation models will explore whether implementation mediates outcomes, using an implementation index developed from project components. Mediation models will also explore whether proximal outcomes (e.g., increased student engagement) mediated program effects on distal outcomes (e.g., literacy achievement). These mediation models will help determine the processes by which the intervention effects distal outcomes, potentially informing optimization of *Amplify* delivery in different contexts.

D1.vi. Cost Analysis for Feasibility of the Replication of Amplify

MPSI and the evaluation team will complete a comprehensive cost analysis using the Resource Cost Model (RCM) framework developed by Levin and McEwan (2002). This analysis will document the full set of resources, also called "ingredients," required to implement *Amplify*,

including personnel time, professional development labor, technology, and instructional materials. Costs will be itemized by program component and categorized as start-up versus ongoing expenses. The team will also calculate total and per-student costs to facilitate comparisons across sites and over time. Finally, cost data will be integrated with program impact estimates to generate a cost-effectiveness ratio, expressing *Amplify's* outcomes relative to each dollar invested.

D2. Evaluation will Provide Guidance About Effective Strategies for Replication

The evaluation of *Amplify* is designed not only to determine whether the program improves literacy outcomes, but also to explain why and how it does so. The evaluation will generate actionable evidence about the mechanisms that connect the professional development model, classroom implementation, and student achievement, providing information necessary for replication and further refinement.

Specifically, *Amplify* will test a theory of change, as seen in the logic model (see Figure C1), where professional development, informed by EBLI, will enhance teachers' instructional quality, self-efficacy, and cross-curricular literacy integration. These teacher-level improvements, in turn, are expected to increase student engagement and self-efficacy, leading to gains in reading comprehension, vocabulary, and writing. Using a cluster-randomized controlled trial, the evaluation will produce rigorous causal estimates of impact while simultaneously examining the mediators and moderators that could explain variation in the outcomes.

The mixed methods data collection, which will include teacher and student surveys, classroom observations, fidelity rubrics, and interviews with teacher-leaders, will provide both quantitative and qualitative insights into how *Amplify* operates in practice. These data will document participation intensity in the professional learning, the teacher-leader coaching quality, and the integration of AI-supported literacy tools. Quantitative mediation and moderation analyses

will identify which components are most strongly associated with our outcomes, while the qualitative findings will help illuminate the implementation processes. Together, these analyses will produce replicable, generalizable evidence about the strategies districts and states can use to scale *Amplify* or similar literacy initiatives.

D3. Quality of the Evaluation Plan for Measuring Fidelity of Implementation

High-quality fidelity measurement is essential for both internal validity and replication. MPSI and the external evaluation team will employ a multi-source, multi-method system to assess the fidelity of implementation across all the program components. Fidelity will be operationalized along three dimensions: 1) adherence to the program design, 2) the exposure or dosage received by the teachers and students, and 3) the quality of the delivery.

Specifically, the fidelity data will include: 1) professional development participation records and coaching logs to document dosage, attendance, and completion of the online training sessions, 2) classroom observation rubrics assessing teachers' use of EBLI and STAMP strategies during instruction (Slow Release, Think Aloud, Markups, and Pacing Awareness), 3) teacher and teacher-leader self-report surveys assessing confidence, perceived barriers, and integration of AI-enabled dictations and writing supports, and 4) AI usage analytics documenting the frequency and depth of the technology-supported literacy activities.

The evaluation team will establish inter-rater reliability for the observation tools, conduct periodic calibration sessions, and triangulate quantitative fidelity data with qualitative feedback from the implementation team meetings. Fidelity data will be incorporated into the analytic models both descriptively (to monitor implementation quality) and inferentially (as potential mediators and moderators of outcomes). These procedures will ensure that this study *Meets WWC Standards without Reservations* and provides evidence that *Amplify* was implemented as intended.

D4. Design for Implementing and Evaluating the Proposed Project to Guide Replication

The evaluation of *Amplify* is thoughtfully structured to produce scalable implementation knowledge relevant to state education agencies, schools and districts, and national literacy initiatives. *Amplify's* 80-school cluster-randomized design includes a varied sample that should ensure findings are applicable across many geographic and demographic contexts.

The replication guidance will come from three data sources: 1) comprehensive documentation of how schools with different capacities and contexts adapt *Amplify* while maintaining fidelity, 2) a cost-effectiveness analysis detailing the resources and costs required per teacher and student, allowing schools and districts to plan sustainable expansion, and 3) evidence of persistence within the project period, examining the stability of teacher practice and literacy gains across the implementation years, specifically whether the first cohort maintains improvements after formal coaching and support has tapered off.

MPSI and the evaluation team will synthesize these findings into implementation briefs and policy summaries designed for dissemination to state literacy offices, rural education networks, and professional associations. By combining the rigorous causal evidence with cost and fidelity data, the evaluation will yield replicable implementation guidance that should demonstrate that *Amplify* can be implemented effectively, efficiently, and sustainably in new settings.

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