

Project ENGAGE

(Effectively Narrowing Gaps And Growing Engagement)

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A. Significance (30 Points) (1) *The national significance of the proposed project.*

Summary: Jointly, eleven rural public school districts have consented for Osage County Interlocal Cooperative (OCIC) to apply for the Education Innovation and Research Program Early-Phase cooperative agreement. The Oklahoma State Board of Education has approved, under state law, OCIC as a “local education agency for state and federal application, reporting and auditing procedures.” The LEAs (Anderson, Bowring, Caney Valley, Hominy, Osage Hills, Newkirk, Pawhuska, Shidler, South Coffeyville, Woodland and Wynona) reside in close proximity and cooperatively share programs (i.e., State Math Science Partnership professional development grant; Federal Native American Youth Project; and School Climate Transformation Grant (SCTG)). Demographics and current behavioral and academic performance are similar.

Major components of this five-year initiative (described in the pages to follow) represent promising and innovative approaches to implement a successful Education Innovation and Research Program to improve academic outcomes for high-need students (**Absolute Priority 1**) and to improve school climate (**Absolute Priority 2**). Project ENGAGE (**E**ffectively **N**arrowing **G**aps **A**nd **G**rowing **E**ngagement) will serve approximately **1,800 K-8 students** in **eleven LEAs** and **seventeen sites** (2 Early Childhood Centers; 11 Elementary; 4 Middle Schools) in Northeastern Oklahoma. ENGAGE meets the **rural applicant qualifications** with all 11 LEAs having a district locale code of 32, 33, 41, 42, or 43 (*see Applicant Eligibility Document Appendix G*). LEAs have 58% - 78% of students who qualify for free or reduced school meals and an average 20% of students on individualized education plans (IEPs).

Identified Problem: Need: Lack of resources and support in rural areas. There are unique challenges to educating all students in rural areas. Rural schools often struggle to meet the needs

of students with disabilities due to a lack of school psychologists and other related service providers, leading to potential lapses in services provided to students (Lahman, D'Amato, Stecker, & McGrain, 2006). In an article by Clopton and Knesting (2006), almost 50% of rural school psychologists reported district constraints, a lack of appropriate workspace, difficulty acquiring current research and updated assessment materials were factors in their difficulty meeting student needs; 57% of those surveyed reported a lack of suitable referral options.

With a scarcity of resources and a lack of personnel to provide early intervention services through traditional mental health model of consultation, a preventative problem-solving framework such as Multi-Tiered Systems of Support (MTSS) is an efficient and effective solution for improving student outcomes. MTSS involves training personnel to make data-based decisions to prevent and remediate behavioral and academic issues. While research has sought to demonstrate the positive impact of MTSS on academic achievement, there is still a need for continued research on the effectiveness of implementation in rural settings.

In the context of rural education, technology-based interventions (i.e., intentional technology) also make logical sense due to minimizing need for face-to-face contact with consultants and interventionists, as well as a likely higher level of implementation fidelity. However, intentional technology for integrated instruction and intervention is minimally used in rural schools. Reasons include lacking reliable internet services, outdated computers, budget constraints eliminating curriculum subscriptions, and teachers not receiving support for classroom technology. Implementation of MTSS may enhance the effect of technology on academic performance by allowing teachers to utilize instructional strategies accessible through technology and increasing engagement.

Need: Students receiving special education services are disproportionately disciplined.

Students placed in special education are often disciplined at rates disproportionately higher than their general education peers. Recent national data show secondary students in special education are suspended at a rate of 18% compared to the 10% suspension rate for general education peers (Losen, Hodson, Keith, Morrison, & Belway, 2015). Even more alarming, the same data indicate elementary students in special education are twice as likely to be suspended compared to general education students. According to the 2011-2012 U. S. Department of Education, students in special education were also 2 to 10 times more likely to be paddled, suspended or expelled.

Unfortunately, Oklahoma is not an exception to national findings. According to a 2015 article by Nate Robson, Oklahoma ranks first in the nation for the percentage of students in special education expelled and fourth in utilizing corporal punishment for these students. Currently, Oklahoma Senate Bill 81 is making its way through the legislative process to mandate lengthy suspensions for students in third grade or above who commit or attempt assault towards school employees, building upon current exclusionary law which mandates the punishment for students in sixth grade or above. While tracking methods for discipline have increased, many disciplinary actions are still not recorded in Oklahoma. Behavior data for OCIC districts reveal while students in special education comprise 20% of enrollment, they account for an average of 27% of office discipline referrals. Consultation with administrators and teachers reveal students are frequently disciplined or sent home without documentation due to time constraints, lack of consistent procedures and policies, and lack of training for new personnel.

The direct result of being sent home early, suspended, or expelled is missed classroom instruction, a critical factor for a student's success in their education program that places such

students at-risk for a host of learning issues. Oklahoma has seen an increase in the number of students on IEPs from 98,965 (15%) in 2011-2012 to 109,398 (16%) in 2015-2016. State and federal data indicate Oklahoma students enrolled in special education both receive lower scores on assessments and are less likely to graduate. During 2013-2014, only about 77% of Oklahoma's students enrolled in special education received a high school diploma compared to 84% of students graduating in general education.

Need: Professional development. Teachers in Oklahoma are under-supported across a variety of dimensions. Overcrowded classrooms, second-lowest nationally base salaries, lacking financial support for classroom supplies, and overall frustration with the state of education are all factors leading to substantial teacher attrition. Oklahoma's funding per student of \$7,995 has remained the same level since 2011 and is significantly lower when compared to surrounding states - Kansas is \$10,240, Missouri is \$9,938, Arkansas is \$9,752, and Texas is \$8,602. With funding so low, schools are often forced to go without necessary professional development.

Additionally, recruitment and retention of trained special education teachers and general education teachers prepared to work with students with disabilities mainstreamed in their classrooms continues to be an ongoing challenge in rural areas. From 2011 to 2017, emergency teacher certifications increased from 32 to 1,154. Emergency certified teachers lack classroom management training and have little to no experience with students on IEPs, despite the fact that Oklahoma's Teacher Leader Effectiveness (TLE) framework's evaluation weights classroom management as 40% of the overall effectiveness score. Unsurprisingly, a 2011 survey conducted by Reinke, Herman, and Sprick found over 200 teachers reported their most difficult challenge was classroom management, they received inadequate training, and they desired further training.

Previously, first-year Oklahoma teachers were provided a mentor for guidance in navigating classroom instruction. Due to budget constraints this practice is no longer in place, leaving teachers isolated to handle challenges alone and implement newly learned skills without support or feedback. Through a strategic partnership with Oklahoma State University (OSU) under a federally-funded School Climate Transformation Grant (titled Project AWARE), OCIC has filled this gap by providing professional development and weekly on-site consultation on the MTSS implementation, focused on improving behavior through positive behavioral interventions and supports (PBIS). University supervisors (a doctoral-level board certified behavior analyst and a licensed health service psychologist) and doctoral-level school psychology graduate students serve as trainers and consultants, and a memorandum of understanding (*see Appendix C*) has been signed with OSU to continue to provide annual services as in-kind contributions meeting the 10% required match of the total grant. In addition to support provided by OSU, professional development and coaching on technology-based instruction and interventions is still needed.

Need: Low academic performance. Currently, academic outcomes for all Oklahoma students are bleak. In 2016, Oklahoma ranked 42nd on National Assessment of Educational Progress (NAEP) test score performance for fourth and eighth grade students in reading and math. With its overall education quality grade of D+, Oklahoma ranks 46th in the nation.

While OCIC member district schools are making gains in improving school climate, as evidenced by the results of the TFI, a widely accepted instrument that quantifies fidelity to PBIS implementation, academic achievement has not shown the same improvement. When administered the Tiered Fidelity Inventory (TFI; Algozzine et al., 2014) in winter of 2016, the average school score was 79% (Goal =80%). From spring of 2015 to spring of 2016, the four

schools enrolled in the first cohort of AWARE increased their scores on the OTISS (Oklahoma Tiered Interventions Systems of Support) Fidelity assessment from 52% to 81%. Kindergarten through eighth grade 2015-2016 reading screening data across OCIC schools indicate an increase in the percentage of students performing on benchmark (an increase of 12% from 55% in fall to 67% in winter); however, these outcomes still fall short of the target goal of 80% of students on benchmark indicative of a successful Tier 1 curriculum. Current research shows, at a national level, schools with higher TFI implementation scores (indicating critical features of PBIS are in place) may have higher academic achievement scores (Simonsen et al., 2012); however, research in this area utilizing an experimental or quasi-experimental framework is sparse.

Effective teachers know that students learn by doing, and researchers agree that for learning to occur, students must be engaged in the learning task (Emmer & Stough, 2001). In a study by Allday, Bush, Ticknor, and Walker (2011), the researchers defined task engagement as “actively participating in the designated activity by (a) being oriented toward the teacher or task, (b) having necessary materials, (c) following teacher directions, and (d) listening through verbal... and nonverbal... means for at least 5 consecutive seconds” (2011, p. 394). Gallup’s 2013 *State of America’s Schools* reported 55% of students (K-12) are, on average, engaged in the learning process, 28% are not engaged, and 17% are actively disengaged. Numerous studies have indicated engaged behaviors during instruction are key mediators/moderators leading to the learning of new skills (e.g., Greenwood & Kim, 2012; Powell, Curchinal, File, & Kontos, 2008; Williford, Vick Whittaker, Vitiello, & Downer, 2013). Additionally, a student’s demonstration of disruptive behavior simultaneously inhibits their and their peers’ learning potential (Sugai & Horner, 2002; Walker et al., 1996). Student engagement becomes even more critical considering

students diagnosed with learning problems, at a higher risk for missed instruction due to exclusionary discipline practices, need even more time to acquire information. (Gettinger, 1984).

This research suggests for academic outcomes to improve, two actions must occur: 1.

Evidence-based academic supports should be introduced for vulnerable students; 2. Behavioral supports should be implemented to allow, or enable, use of those academic supports.

Overview of Proposed Solution: ENGAGE hypothesizes that efforts to increase student engagement within each tier of instruction by achieving and maintaining optimal PBIS fidelity, and in combination with evidence-based academic intervention for those students at-risk, will lead to decreases in student discipline disproportionality and increases in student academic achievement in rural schools. Intentional technology for this project during *Phase 1* will be defined as digital instructional materials used to enhance Tier 1 instruction and/or specifically designed instruction for Tier 2 or Tier 3 to address academic problems while concurrently potentially reducing behavioral problems as an appropriate student-task instructional match is achieved. *Phase 2* will scale-up the intentional technology proven effective in *Phase 1* and comprehensively integrate it within the MTSS framework.

(2) Extent project involves promising new strategies that build on existing strategies.

The Oklahoma Department of Special Education has developed the OTISS as a state-level model for schools to develop MTSS. The OTISS model includes eight critical components of implementation: 1) Leadership, 2) Teaming, 3) Professional Development, 4) Universal Screening/Benchmarking, 5) Tiered Interventions, 6) Progress Monitoring, 7) Data-based Decision Making, and 8) Family Engagement. The OTISS framework is a proactive process utilizing the expertise of school professionals and parents to make data-based decisions about

students' need for academic and behavioral intervention across tiers of increasing support.

Systems such as OTISS are well aligned with new federal education guidelines under the 2016 Every Student Succeeds Act (ESSA), which specifically emphasize the importance of tracking school climate and discipline data. Oklahoma's ESSA plan will be utilizing school climate and culture as an additional indicator of school success. The effectiveness of OTISS is evident in outcomes demonstrated by both OCIC's AWARE and other federally funded programs managed through the Oklahoma State Department of Education. AWARE added a novel component to the OTISS framework by partnering with Oklahoma State University (OSU) to utilize school psychology doctoral students (under the supervision of practicing school psychologists) as external coaches for participating school districts. External coaches provide high quality consultation on utilizing data to drive decisions, modeling and teaching problem solving skills to address needs, matching interventions to student needs and professional development. Currently, many rural school districts do not have funding to hire school psychologists to provide these services. With AWARE, graduate students get real-world experience working in a consultant role, and schools receive high quality services on the cutting edge of research from qualified personnel without incurring a significant financial burden. Sustainability is by partnering with universities, and schools can cooperatively share school psychologist services and/or utilize additional state or federal funding, i.e., grants, ESSA, etc.

ENGAGE will develop a study to look at small rural districts' implementation of PBIS within the MTSS framework and the subsequent impact on student achievement, including students receiving special education services. The study will build on existing strategies and data collected through OCIC's AWARE, which in turn utilizes OTISS as one service-delivery

component, in consortium with the 11 member districts for kindergarten through eighth grade students. The study will extend these current supports by looking at the interaction between high fidelity PBIS implementation and intentional technology (which is well suited for rural districts that lack easily accessible consultation and must operate with fewer local resources) on student behavior and student achievement. With AWARE's framework, support and resources for MTSS at each school are provided. Schools are currently in different stages of implementation based on start date and individual school factors, such as administrator and teacher turnover, teacher resistance and buy-in, and baseline level of implementation.

Current contributions to the research base of MTSS include five poster sessions and two presentations at national (i.e., National Association of School Psychologists) and international conferences (i.e., Association for Positive Behavior Support). Titles include: *Implementing Tier 1 PBIS in Rural School Districts Across Grade Levels*; *Practice Makes Perfect: The Impact of WE-CBM on Writing Performance*; *Native American Outcomes within a Multi-tiered Systems of Support Framework*; *How to Rule MTSS in Rural America*; and *Tier 1 Middle School Math Interventions: A Case Study*; *Incorporating Support Staff in Multi-tiered Systems of Support*; and *What's the Norm? A Practical Analysis of Universal Screening Tools & State-Mandated Assessment in Rural Schools*. Additionally, a write-up of OCIC's Project AWARE, authored by two members of the project's leadership team, will be included as a chapter in an upcoming volume of *Current Perspectives on School/University/Community Research*.

(3) *Extent proposed project represents an exceptional approach to the priorities.*

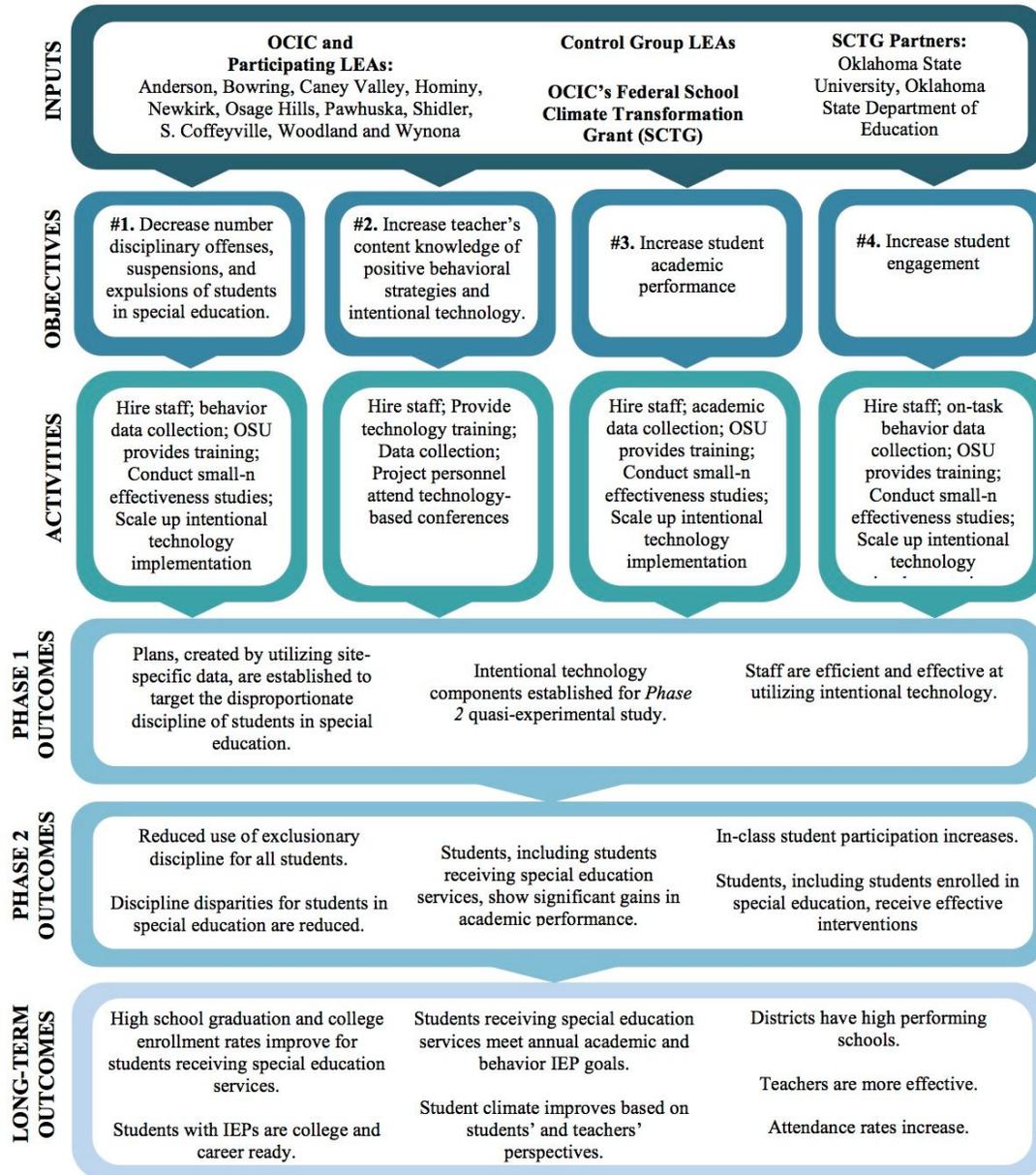
ENGAGE's approach to improve school climate will test a promising approach to supporting students in rural schools, in particular students receiving special education services, via

integrating intentional technology within an already proven, distinctively effective MTSS model. In addition to providing valuable resources to underserved schools, ENGAGE will yield valuable research to the current literature base on the impact of multi-tiered systems of support in rural schools supported by university-school LEA partnerships and the effectiveness of increasing student engagement and academic achievement via technology across tiered levels (i.e., computer adaptive intervention programs to improve literacy skills). ENGAGE will also provide professional development for administrators, teachers, and support staff on how to engage all students, in particularly those with IEPs, to eliminate the escalation of problem behaviors and increase student achievement.

Empirical verification will entail a two-step process. First, a study will be conducted in *Phase 1* to compare the effectiveness of three computer-adaptive interventions, approved by the Oklahoma State Department of Education, on reading fluency and comprehension for students exhibiting behavioral and academic deficits in a rural setting at Anderson Public School and Hominy Public School. Additionally, researchers will measure student engagement during intervention sessions, as well as potential generalization of student engagement during core reading instruction as the gap between student's instructional level and on-level core instruction is hypothesized to be reduced. During *Phase 2*, researchers will utilize a quasi-experimental framework to measure the interaction of achieving optimal fidelity level for PBIS and utilizing technology-enhanced academic instruction (via the technology determined most effective during *Phase 1*), creating a replicable model hypothesized to result in gains in academic achievement that may be made available for other rural districts.

B. Quality of the Project Design and Management Plan (50 Points) *(1) Extent goals, objectives, and outcomes are clearly specified and measurable.*

Logic Model (Appendix B):



Goals, Objectives, Activities and Outcomes:

Goal 1: Improve school climate and reduce disparities in discipline within rural schools.

Objective 1:1: Number of students in special education disciplined, suspended and/or expelled will show a 10% decrease from Year 1 baseline data by the end of Year 5 for participating schools meeting PBIS fidelity as measured by office discipline referrals, school records, and TFI scores.

Activities: 1) Hire Research and Planning Coordinator, Instructional Technology Coach, Research Technician; 2) Establish baseline behavior data (Office Discipline Referrals (ODRS), Suspensions/Expulsions, On-Task Behavior Rates) for special education students in Year 1 for participating schools, then continue collecting data through Year 5; 3) OSU provides in-kind training for administrators, teachers and support staff on engaging special education students in classroom activities, utilizing positive reinforcement to prevent behavior problems, and alternatives to suspension/expulsion; 4) Conduct studies to compare and evaluate effectiveness of three computer-adaptive interventions targeting reading fluency 5) Once effectiveness is validated in *Phase 1*, embed and implement intentional technology across tiers at other sites.

Objective 1:2: Participating teachers that attend professional development will improve their content knowledge of intentional technology by the end of year 3 as measured by pre- and post-surveys developed by the instructors, and/or the project evaluator.

Activities: 1) Hire an Instructional Technology Coach to consult with and develop Instructional Technology Teacher Leaders at each site; 2) Provide training for administrators, teachers and support staff in summer workshops and follow-up coaching/trainings throughout the school year (monthly data/oversight meetings; professional development/in-service days, one-on-one training, and/or small groups) on engaging students in technology-based classroom activities; 3) Utilize survey data for decision-making for planning future trainings; 4) Key project personnel will attend local, state and national conferences to continually stay informed of new legislation, emerging best practices, and promising research.

Goal 2: Improve academic performance for all students in high-needs rural schools.

Objective 2:1: Academic performance of students, including students receiving special education services, in participating schools will make significant progress on Oklahoma Core Curriculum Tests (OCCT; as defined by the Oklahoma State Department of Education) and/or curriculum based measurements (as defined by national norms) by the end of Year 4.

Activities: 1) Hire Research and Planning Coordinator, Instructional Technology Coach, Research Technician; 2) Establish baseline academic data for students in Year 1 for participating schools, then continue collecting data through Year 5; 3) OSU provides in-kind training training for administrators, teachers and support staff on effective classroom management, engaging students in classroom activities, and utilizing positive reinforcement to prevent behavior problems; 4) Conduct studies to compare and evaluate effectiveness of three computer-adaptive interventions targeting reading fluency; and 5) Validate effectiveness in *Phase 1*, and then embed and implement intentional technology across tiers at other sites.

Objective 2:2: Compared to baseline data, classroom student engagement will make significant gains towards the target goal of 80% of students on-task as measured by class-wide student on-task observations.

Activities: 1) Hire Research and Planning Coordinator and Research Technician; 2) Establish baseline On-Task Behavior Rates in Year 1 for participating schools, then continue collecting

data through Year 5; 3) OSU provides in-kind training training for administrators, teachers and support staff on effective classroom management, engaging students in classroom activities, and utilizing positive reinforcement to prevent behavior problems; 4) Conduct studies to compare and evaluate effectiveness of three computer-adaptive interventions targeting reading fluency; and 5) Once effectiveness is validated in *Phase 1*, embed and implement intentional technology across tiers at other sites.

The project design includes two phases: ***Phase 1 and Phase 2***. During *Phase 1*, ENGAGE will focus on two goals: 1. Build upon AWARE’s efforts to obtain and sustain Tier 1 PBIS fidelity within the broader MTSS framework; 2. Empirically evaluate the effectiveness of specific computer-adaptive interventions for utilization as intentional technology within MTSS in *Phase 2*. While all schools receiving services via AWARE will continue to receive their systems-level support, three interventions (i.e., iStation, Read Naturally, and Lexia) will be evaluated at Anderson Public School via a sampling of students before scaling up to other sites.

Outcomes for <i>Phase 1</i> (October 2017 - December 2018):	
Outcomes	Milestones
Plans, created by utilizing site-specific discipline data, are established to target the disproportionate discipline of special education students.	School discipline data is collected with fidelity, and baseline data is established and utilized to problem-solve.
Intentional technology components established for <i>Phase 2</i> quasi-experimental study.	Study evaluating effectiveness of computer adaptive interventions is completed, and results are analyzed.
Staff are efficient and effective at utilizing intentional technology.	Trainings are complete for key personnel at sites.

Phase 2: During *Phase 2*, ENGAGE will take AWARE’s already distinctive MTSS model, embed the intentional technology proven effective in *Phase 1* at the appropriate tier levels (i.e., utilize as Tier 1 supplemental interventions where the percentage of students falling below

benchmark exceeds 20% of the population, utilize as Tier 2 interventions where the percentage of students falling below benchmark falls below 20% of the population), and scale up implementation to empirically test its validity. Schools participating in *Phase 2* will be organized into three categorical levels for analysis: Group 1, Group 2, and Group 3. Group 1 will function as the traditional “contrast” group and will be assigned schools not implementing MTSS or the intentional technology. Schools continuing to implement AWARE’s MTSS without embedded additional intentional technology will be assigned to Group 2. Group 3 will be comprised of schools trained to implement AWARE’s MTSS with embedded additional intentional technology.

Outcomes for Phase 2 (January 2019 - September 2022):	
Outcomes	Milestones
Reduced use of exclusionary discipline for all students, and discipline disparities between special education and general education students are reduced.	School staff are trained and office discipline referrals are being collected with fidelity, and data is being used for problem-solving.
Students, including students in special education, show significant gains in academic performance.	Technically adequate benchmarking and progress monitoring tools are utilized to evaluate student performance across time intervals and evaluate intervention effectiveness.
In-class student participation increases.	Teachers are implementing differentiated instruction utilizing computer-adaptive software.
Students, including special education students, receive effective interventions.	Trainings are complete for key personnel at sites.

(2) Adequacy of management plan to achieve objectives on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks.

Roles and Responsibilities (See attached job descriptions and curriculum vitae Appendix C):

Osage County Interlocal Cooperative (OCIC) under the supervision *Dr. Jacque Canady*, Executive Director, will oversee all aspects of the project and serve as **Project Director** (TBH) until the position is filled, including: recruiting and retaining participating schools; hiring, supervising, and training all project staff; monitoring/maintaining project fidelity and continuous improvement process; all fiscal responsibilities and reporting; and working with evaluator to establish, conduct and publish research studies from the project.

Instructional Technology Coach (TBH) will be responsible for implementing project goals and objectives; team-teach and model project instructional strategies for project; work with schools and project staff to identify, assess, and obtain curricular resources; train and coach teachers in classrooms for effective use of technology-based materials and resources; work with technology consultants to create and maintain a presence for the project on the Web; develop and provide workshops and follow-up trainings on intentional technology strategies for all three tiers.

Dr. Brit'ny Stein, will serve as **Research and Planning Coordinator**. In addition to clinical experience providing school consultative services at the individual, classroom, and school-level on grant-funded projects, Dr. Stein has experience leading and participating in both small and large-N, quantitative and qualitative research-design projects. She was awarded the Savin Scholar Award by Devereux's Institute of Clinical and Professional Training and Research, and she was also named an OSU Foundation Distinguished Graduate Fellow for her evidence of scholarly contributions to her discipline and academic community. She will be responsible for designing *Phase I* studies to evaluate the effectiveness of intentional technology methods (in conjunction with the evaluator), providing research status updates to the Project Director,

working with school institutional review boards, obtaining informed consent from participants, coordinating data collection, maintaining data confidentiality, collaborating with the project director and evaluator to analyze results, and distributing findings for peer-review.

Research Technician (TBH) will be responsible for assisting in data collection activities, including conducting classroom observations, distributing surveys, measuring treatment integrity, and data entry into statistical software.

Dr. Benjamin Solomon, University at Albany, will serve as **Evaluator**. For the past eight years, Dr. Solomon has conducted research across areas of behavioral and academic interventions, as well as cutting-edge research single-case effect sizes. He serves on the Editorial Advisory Board of both the Journal of Educational Psychology and School Psychology Review and is also a member of the Academic Progress Monitoring Technical Review Committee for American Institutes for Research. His extensive experience in research design and evaluation of results make him highly qualified to serve as evaluator. He will conduct the following duties: facilitate data collection on site, conduct all summative and formative data analysis as described, provide feedback to staff members regarding implementation fidelity based on collected data, and serve as a consultant for research design through *Phase 1* and *Phase 2*.

Project ENGAGE Management Plan			
Activity	Person Responsible	Timeframe	Milestones
Notify stakeholders of grant award	Executive Director, Project Director, Evaluator, LEA Superintendents	10/2017	Districts are prepared to begin implementation.
Solidify matching funds	Executive Director, Project Director	10/2017	OSU doctoral students and supervisors are staffed, trained and prepared to begin services.

Project ENGAGE - Osage County Interlocal Cooperative

Hire project staff and contract with Evaluator	Executive Director, Project Director	10/2017-11/2017	Staff and evaluator are hired and actively involved with project activities.
<i>Phase 1 (October 2017 - December 2018):</i>			
Activities	Person Responsible	Timeframe	Milestone
Identify students at Anderson Public School and Hominy Public School for research study	Project Director, Evaluator, LEA Superintendents	10/2017-12/2017	School understands goals of project and commits to participate, support, and provide access for project staff to implement activities.
Work with schools to continue MTSS implementation	Project Director, OSU	10/2017-12/2018	OSU is providing training, resources & services as in-kind; schools consistently acquire 80% on TFI.
Purchase three computer-adaptive reading softwares for 25 students	Project Director, Project Staff	10/2017	Login information is available for project staff, participating school, and students.
Baseline data collection and analysis for behavior and academics	Project Director, Evaluator, Research/Planning Coordinator, Research Tech, LEAs	10/2017-12/2018	Data is valid and collected with fidelity for each student group and technology component. Data is used to make decisions and improve the process.
Professional Development for Instructional Technology Teacher Leaders and School Staff	Project Staff, Consultants	10/2017-12/2018	Teachers utilize intentional technology at all three Tiers; Instructional Technology Teacher Leaders complete workshops and follow up trainings and are ready to lead their schools.
Progress reports are completed and shared with stakeholders	Project Director, Evaluator, Project Staff	Quarterly: 12/2017; 03/2018; 06/2018; 09/2018; 12/2018	Stakeholders are able to provide feedback on progress and problem solve with data on the reports.
Annual Progress Reports completed and submitted to US Dept of Ed	Project Director, Research/Planning Coordinator, Evaluator	Mid-Year 2018 and End of Year, Sept. 2018	Data is analyzed and evaluation of the program is complete.

Project ENGAGE - Osage County Interlocal Cooperative

Roll-out plan for <i>Phase 2</i> established	Project Director, Evaluator, Project Staff, LEAs	10/2018-12/2018	Results from <i>Phase 1</i> are evaluated and LEAs are prepared to begin implementation.
<i>Phase 2 (January 2018 - September 2022):</i>			
Identify participating schools and create student groups for research study	Project Director, Evaluator, LEA Superintendents	10/2018-12/2018	School understands the goals of the project and has committed to participate, support, and provide access for the project staff to implement activities.
Work with schools to sustain MTSS implementation	Project Director, OSU	01/2018-09/2022	OSU is providing training, resources & services as in-kind; schools consistently acquire 80% on TFI.
Purchase additional subscriptions reading program	Project Director, Project Staff	12/2018	Login information is available for project staff, participating schools, and students.
Data collection and analysis for behavior and academics	Project Director, Evaluator, Research/Planning Coordinator, Research Technician, LEAs	01/2018-09/2022	Data is valid and collected with fidelity for each student group and technology component. Data is used to make decisions and improve the process.
Professional Development for Instructional Technology Teacher Leaders and School Staff	Project Staff; Consultants	01/2018-09/2022	Teachers are utilizing intentional technology at all three Tiers; Instructional Technology Teacher Leaders complete workshops and follow up trainings and are leading & coaching at their schools.
Progress reports are completed and shared with stakeholders	Project Director, Evaluator, Project Staff	Quarterly: 01/2018-09/2022	Stakeholders are able to provide feedback on progress and problem solve with data on the reports.
Annual Progress Reports are completed and submitted to US Dept of Ed	Project Director, Research/Planning Coordinator, Evaluator	Mid-Year and End of Year each year grant is funded. 01/2018-09/2022	Data is analyzed and evaluation of the program is completed annually.
Results of research study published	Project Director, Research/Planning	01/2018-09/2022	Proposals written and submitted for publication.

	Coordinator, Evaluator		
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(3) Extent feedback and continuous improvement are integral to design of the proposed project.

ENGAGE will continuously improve the model through a phased implementation and promote scaling by creating tools and resources for replication. During *Phase 1*, to ensure project timelines and goals are being met, both quantitative and qualitative data will be utilized to inform decisions on project implementation and solidify research components. Data will include, office discipline referrals, OCCT and Curriculum-Based Measurement (CBM), surveys, observations, interviews, and fidelity assessments. Stakeholders, district superintendents/administrators, teachers, and parent representatives will be informed and asked to provide feedback on a mid-year and annual basis of *Phase 1* through focus groups, social media posts, and/or other forms of communication deemed appropriate.

Phase 2 implementation will be dependent on feedback and findings from *Phase 1*. Most importantly, the intentional technology to be utilized within the MTSS framework (the treatment condition for one group of schools) will have been empirically validated via study conducted in the previous phase. Similar but refined continuous feedback will be utilized to inform project implementation assessment and inform stakeholders.

(4) Mechanisms to disseminate information to support further development or replication.

ENGAGE’s purpose, trainings, events, program highlights, and reports will be disseminated through various formats including newsletters, informational meetings with stakeholders, social media, and announcements at LEA data meetings. Annual reports will be disseminated and will include: an executive summary on overall progress of the grant; updates on performance of

project objectives; fidelity measures; how the project is meeting established timelines and milestones; how sustainability is being incorporated districts; professional development being provided along with evaluations of trainings; and student behavioral and academic performance.

One of the major components of the formative evaluation is to establish research-based evidence and document a model of improving school climate in rural schools to facilitate replication in other settings. Multiple opportunities will exist for publishable research during *Phase 1* and *Phase 2* of the project. The Research and Planning Coordinator and Evaluator will actively seek out opportunities to submit presentation proposals to national conferences, such as the International Conference on Positive Behavior Support and the Annual Convention for National Association of School Psychologists, and articles to peer-reviewed journals, such as the *Journal of Positive Behavior Interventions*, *School Psychology Quarterly*, *Remedial and Special Education*, and the *Journal of Special Education*. Project staff will also submit proposals for poster sessions and presentations at local, state and national technology conferences.

C. Quality of the Project Evaluation (20 Points) *(1) Methods of evaluation will produce evidence about project's effectiveness that meets WWC Evidence Standards with reservations.*

Phase 1 of ENGAGE will entail a fully experimental 3x3 (condition x time) randomized group design to establish intentional technology that is best suited for remediating student reading deficits at Tier 1 and 2 during *Phase 2*. This study will meet What Works Clearinghouse standards without reservations (2014). In the beginning of the school year, students in grade 1, 2, and 3 residing within Anderson Public School and Hominy Public School will be screened on grade level CBM ORF passages. Those falling below the 20th percentile based on national norms will be randomly assigned into one of three conditions: a wait-list control, *iStation*, or *Read Lexia*. These are computer adaptive interventions approved by the state of Oklahoma for

school-use, both of which focus on common pillars of reading, such as phonics and fluency, using an interactive, digital, individually administered platform. Such features make these interventions ideal for use in rural schools: they can be implemented with a higher student:teacher ratio, require less training to administer, individualize through adaptive algorithms, and may be more reinforcing to students since they are interactive. However, their comparative effectiveness is currently unknown in the published literature.

A power analysis has been conducted, which suggested that at least 18 students will be needed in each condition (total n of 54), given a modest expected standardized effect size of .20. This is attainable given the current demographics of the schools (i.e., current reading performance at these grade levels across the two schools). Interventions will be run in the fall semester (14 week duration) and data collection will occur at the beginning, middle, and end of the semester. The number of sessions will be equalized across the interventions. In the spring semester, the wait-list control group will receive the intervention determined to be most effective for an equal amount of time.

Phase 2 will follow a longitudinal quasi-experimental design to establish findings that ascribe to an acceptable level of empirical rigor (Shadish, Cook, & Campbell, 2012; What Works Clearinghouse standards with reservations [2014]). Such a design will allow conclusions to be drawn regarding the effect of receiving AWARE independently and the implementation of intentional technology under the presence of AWARE on student behavior and academic achievement at all tiers of service in the MTSS model (i.e., the interaction of programmed behavioral and academic supports). There will be three levels of the independent variable (IV). The first level corresponds to the matched contrast schools. Contrast schools will be selected that

are comparable to the experimental schools regarding demographics, as determined by free-and-reduced lunch status, district size, and rural identification. We expect to recruit five contrast schools. Level 2 of the IV will be implementation of AWARE alone ($n = 6$ schools). Level 3 will include schools receiving both AWARE and intentional technology ($n = 5$ schools). Such a design is consistent with other published studies demonstrating effectiveness of PBIS (e.g., Caldarella, Shatzer, Gray, Young, & Young, 2011; Madigan, Cross, Smolkowaki, & Strycker, 2016; Wills, Kamps, Abbott, Bannister, & Kaufman, 2010). Analysis will occur in parallel for all students (Tier 1, 2, 3) and for subgroups exposed to intentional technology (e.g., Tier 2 & 3).

(2) Extent evaluation provides guidance about effective strategies suitable for replication.

ENGAGE, an extension-replication of AWARE, will be a manualized consultative approach to increasing treatment integrity with PBIS strategies. Like AWARE, it will entail use of developed evaluative rubrics and established consultative procedures, used substantially within a tele-consultative framework, for schools at different levels of PBIS fidelity. LEAs in other rural settings will benefit from these manualized, shareable materials and the findings of the studies, which will be made freely available via the ENGAGE website. The two reading interventions being tested could be independently adopted by other rural LEAs. They are well suited for this purpose since they are “self-run” to a large extent. The current proposal provides insight on the most appropriate packaged technologically-based reading interventions for use in rural schools, how the use of such technology interacts with enhanced behavior management practices, and does so within a rural context with fewer resources.

(3) Extent methods of evaluation provide valid/reliable performance data on relevant outcomes.

Phase 1 dependent variables (DVs) will be (a) oral reading, measured using CBM oral reading fluency and standardized scores on the Woodcock-Johnson Basic Early Reading Skills cluster (b) reading comprehension, measured as CBM MAZE and standardized scores on the Woodcock-Johnson Reading Comprehension cluster (c) intervention session on-task behavior, measured as the tally of on-task intervals on a 10 minute time-sampling observation, from a random sample of 10 students in each condition, measured three times during the intervention and finally (d) generalized on-task behavior during Tier 1 reading blocks for students engaging in intentional technology at Tier 2/3 on an identical schedule to c and for those students randomly selected in c. Evaluation of these outcome variables will entail use of significance testing using multivariate analysis of variance and post-hoc analysis (reading fluency, comprehension) and *t*-tests (on-task behavior), assuming statistical assumptions of such tests are met. We will also conduct descriptive analysis and interpret effect sizes and confidence intervals to make decisions regarding *Phase 2*. CBM will be collected at all data collection sessions. Woodcock-Johnson data will be collected pre- and post-test.

Phase 2 DVs will be constant across levels of the IV and will include: OCCT scores, Office Discipline Referrals, suspension and expulsion rates, TFI fidelity scores, and CBM data. Each of these outcome metrics are comparable to those of past studies, are socially valid, easily replicated in future inquiry, and have evidenced reliability and validity as generalized indicators of PBIS integrity and student academic behavior (e.g., Christ et al., 2012; McIntosh et al., 2017; Oklahoma State Department of Education, 2015). Collection of data will proceed as follows for each of the three years of implementation:

Data Collection Time Table:

Fall	TFI, OTISS Fidelity Inventory, CBM, ODRs, Suspensions, Expulsions, School Climate Surveys
Winter	CBM, ODRs, Suspensions, Expulsions
Spring	TFI, OTISS Fidelity Inventory, CBM, ODRs, Suspensions, Expulsions, School Climate Surveys, OCCT

Behavioral change will be indexed at the student level (i.e., CBM, ODRs, suspensions, expulsions, OCCT) and at the school level (TFI, OTISS Fidelity Inventory). Student-level data will be statistically modeled, whereas school-level data will be summarized (e.g., means, percentiles) and reviewed descriptively. Students operate within classrooms and schools (i.e., they are nested), and it is likely any behavioral change will be the result of the introduced IVs and unique variance exerted from students residing in individual classrooms and schools (i.e., shared variance). To increase the validity of the evaluation findings, we will use Hierarchical Linear Modeling (HLM; Raudenbush & Bryk, 2002) to control for these nesting effects within a three-level model: students (Level 3) in classrooms (Level 2), nested within schools (Level 1). We will use HLM for either continuous or count data (i.e., generalized models) to model growth in outcome variables within and across years using group assignment (a cross-level interaction within the HLM model), pretest scores (What Works Clearinghouse, 2014), and treatment integrity as predictors of student growth in math and reading (OCCT and CBM). This analysis will be conducted for all students. A parallel subgroup analysis will be conducted for those receiving Tier 2 intervention services, since this subgroup will receive the direct effect of intentional technology. Data will be graphed and summarized in a fashion that is understandable to leadership within the participating schools.

(4) Extent evaluation articulates components, mediators, and outcomes for implementation.

The evaluation plan in *Phase 1* will use a fully experimental group design study to identify the most effective method to introduce intentional technology as an intervention for critical pillars of reading: fluency and comprehension (National Reading Panel, 2000). The analysis of on-task behavior is, sadly, often overlooked in the published literature and is a primary mediator of the success of a given reading intervention for at-risk children (i.e., the likelihood of attention to the instructional stimulus). It may well be one of the digital platforms is more reinforcing to students than the other, resulting in greater on-task behavior and achievement.

A key component of experimental change is treatment integrity (Schulte, Parker, & Easton, 2009), which is the degree to which the interventionist implemented the intervention as intended. Integrity will be measured and reported for *Phase 1* and *Phase 2* based on integrity checklists developed by the investigators for the interventions. We will use commonly accepted benchmarks for acceptable integrity (e.g., > 80%) in both phases. An analysis of treatment integrity will allow us to gauge the probability of correct implementation in the future (e.g., *Phase 2*). Furthermore, all collected outcome variables across both phases will be subjected to inter-observer agreement checks (i.e., randomly sampled 20%) to ensure accurate scoring.

Phase 2 will use a popular (e.g., Coddling et al., 2016; Schutte et al., 2015) and flexible approach to modeling student growth. Such a model will also account for treatment integrity as a covariate (e.g., scores on the TFI and OTISS integrity worksheet) and will model established critical outcomes: CBM and state standardized test scores. The criteria for study success in *Phase 2* will be based on the convergence of several statistical metrics including, (a) descriptive differences in outcomes across time (b) standardized effect sizes and (c) statistical significance (e.g., $p < .05$).