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A. Significance

A.1. Project Overview and Alignment with Absolute Priorities

Arizona State University (ASU), Childsplay Theatre Company, and Phoenix Elementary School District (PESD) are applying as partners for the **Early-Phase Education Innovation and Research competition under Absolute Priorities 1 and 4** to develop and experimentally test **EYEPlay Inclusion**. EYEPlay Inclusion will adapt EYEPlay—an evidence-based intervention that provides preschool teachers with training to implement drama-based instructional (DBI) strategies during storybook reading—for teachers and caregivers of preschool children with high communication needs (HCN). HCN children are learners experiencing significant expressive and receptive language delays requiring Individualized Education Programs (IEPs). Evidence from our past studies and related literature meets **Absolute Priority 1** to *demonstrate a rationale* for the effectiveness of promoting HCN children’s academic achievement through DBI (Kilinc et al, 2023; Lee et al., 2015; Pierce et al., 2022) and promoting caregiver shared book reading (Fitton et al., 2018; Kapengut & Noble, 2020). The proposed study meets **Absolute Priority 4** by *developing and implementing an evidence-based, field-initiated innovation to improve the academic achievement of diverse, high-need students*.

The principal goal of EYEPlay Inclusion is to *improve* preschool children’s language, literacy, and socioemotional development through drama-based, developmentally appropriate storybook learning experiences. EYEPlay Inclusion addresses the components of **Absolute Priority 4** in three ways: 1) EYEPlay Inclusion will *provide high-quality teacher professional development (PD) and family literacy programming to develop and support* educator and caregiver capacity in *fostering social and emotional learning* and strengthen preschool student **skills and behaviors**, both of which enable **academic progress**; 2) EYEPlay Inclusion will

foster educational settings that are *supportive* of **trusting relationships** between **underserved students, educators, and families**; 3) EYEPlay Inclusion will *engage* **students, educators, and families from diverse backgrounds** in efforts to improve classroom and home learning experiences of HCN children. We propose to address these components by developing and testing an integrated classroom and home intervention that addresses the socioemotional and achievement needs of HCN learners by adapting a successful DBI teacher PD for HCN preschoolers and creating a complementary caregiver DBI shared book reading curriculum.

Through a grant from the Spencer Foundation, we are currently partnering with inclusion preschool teachers from PESD to develop drama-based strategies to support the participation and engagement of students with a range of physical and communicative needs. The proposed EIR project will extend this work by identifying strategies specific to HCN students, exploring methods for transferring these drama-based strategies to classroom teachers through a new teacher PD, and bringing these strategies into homes for caregivers to use during shared book reading. In collaboration with teachers and families, through iterative design, we will produce a cohesive DBI intervention—EYEPlay Inclusion—that provides HCN children with year-long, integrated learning experiences in classroom and home storybook readings. In the project’s final year, we will test EYEPlay Inclusion with a randomized control trial (RCT) that meets What Works Clearinghouse (WWC) Group Design Standard, ***Without Reservations***.

A.2. National and State Significance

According to the National Center for Educational Statistics (2023), during the 2021-22 academic year 7.3 million (15%) of public-school enrolled children in the United States were identified with disabilities requiring Individualized Education Programs (IEP). Across the state of Arizona, preschool students with IEPs struggle academically, with 60% and 57% failing to

reach early language and socioemotional standards, respectively, upon exiting preschool programs. In 2022, only 16% of Arizona’s children with IEPs achieved at “proficient” or above levels in reading by 3rd grade (Arizona Department of Education, 2023). Furthermore, our PESD partners reported increased learning and socioemotional challenges as students returned to in-person instruction after Covid-19, particularly for children with IEPs, who were delayed in receiving services during the pandemic (Roberts et al., 2022). Identifying, developing, and testing promising evidence-based interventions is critical to supporting the academic success of this population of children.

A.3. Empirical Evidence for Effectiveness of DBI in Supporting Learning.

The proposed project supports HCN student engagement and success by pairing professional teaching artists with classroom teachers to develop DBI storytimes. During DBI storytimes, students “become” story characters, enacting key plot points, and experiencing character emotions. Two meta-analyses report that DBI promotes learner achievement, critical thinking, problem solving, and socioemotional skills (Lee et al., 2015, 2020). Furthermore, DBI: (1) is more effective with preschool children than other age groups; (2) has greater influence when used to teach comprehension or embody new concepts; (3) is applied over time with more than six lessons; (d) is led by classroom teachers; and (e) has greatest benefits on outcomes associated with language arts, reading, creativity, and critical thinking (Lee et al., 2015, 2020).

A.4. Empirical Evidence for Importance of In-Home Shared Book Reading.

Shared book reading between caregivers and children has substantial empirical support as a means of developing language and literacy (Fitton et al., 2018; Noble et al., 2019). A meta-analytic synthesis (Dowdall et al., 2020) of RCTs found that, relative to controls, children experiencing shared book reading interventions displayed greater receptive and expressive

language skills. Caregivers who do shared book reading report relationship bonding and enjoyment of reading as the most important goals (Audet et al., 2008), and shared enjoyment is associated with children's reading motivation and achievement (Baker et al., 1997). Yet, some caregivers express reluctance to engage in home literacy activities, citing lack of confidence in their own language skill, concerns with their instruction quality, perceptions that their children do not enjoy the activities, and/or beliefs that learning challenges preclude literacy activities (Lin et al., 2015; Preece & Levy, 2020). Additionally, caregivers who believe their children do not enjoy reading may be reluctant to read with them (Preece & Levy, 2020). DBI introduces play into shared book reading, making reading more enjoyable for all. We propose that introducing caregivers to DBI will increase the likelihood that they read with children at home.

A.5. EYEPlay – A Promising DBI Intervention for Preschool Children.

Early Years Educators at Play (EYEPlay) is a strengths-based, classroom-embedded PD in which early childhood teachers are paired with teaching artists—professionals in creative drama and early childhood education—to learn to integrate drama into classroom storytime to support learning and engagement. EYEPlay has been implemented in more than 130 preschool classrooms in Arizona across a range of settings. In an efficacy study, EYEPlay children scored higher on the literacy-related elements of Teaching Strategies Gold in comparison to matched controls (Kelley, 2015). Further, a dual language version of EYEPlay was implemented in Arizona and replicated in Florida. In experimental (Bernstein et al., 2022; Van Huisstede, 2023), and in quasi-experimental examinations, EYEPlay promoted the achievement of diverse learners (Kilinc et al., 2017; 2023). In an RCT with general education preschool children (Marley et al., 2018-22), EYEPlay students used more gestures when asked to retell a story; which, in turn

facilitated higher story retell scores (Bernstein et al., 2022) and a greater number of character emotional states (Van Huisstede et al., 2022) compared to control group peers.

A.5.1. EYEPlay and HCN Preschool Children. Previous implementations of EYEPlay in inclusive classroom settings have included HCN students, and EYEPlay teachers consistently report that DBI during storytime increases HCN students' engagement (Bernstein et al., 2021; Kilinc et al., 2017). Because DBI book readings are multimodal, HCN students are afforded multiple avenues by which to participate, comprehend stories, and demonstrate knowledge. EYEPlay teachers report developing expanded views of how students can demonstrate knowledge: through oral language, body movement, gesture and pointing, facial recognition, and expression (Bernstein et al., 2021; Kilinc et al., 2017). These expanded views have motivated teachers to reconsider children's identities and abilities, particularly for students with disabilities, shifting from deficit to strengths perspectives (Kilinc et al, 2016b).

Despite this promising evidence, EYEPlay was not specifically crafted for HCN students. Focus groups and interviews with teachers indicate that EYEPlay would benefit from adaptation for HCN students and classrooms. PESD leaders also identified home-based literacy practices as a key area of need and potential benefit for HCN students. To our knowledge, no such program exists. Using EYEPlay's DBI strategies, caregivers of HCN children can successfully increase learner engagement during shared book reading (Kent-Walsh et al., 2010) and enhance benefits of shared book reading by enacting and telling stories (Hall et al., 2018). We hypothesize that HCN students will benefit from experiencing drama with stories in both classroom and at home.

A.6. EYEPlay Inclusion a Promising New Strategy that Builds on an Existing Strategy.

EYEPlay Inclusion builds upon the current EYEPlay PD. The proposed project will: (1) test an adapted EYEPlay program that meets the needs of preschoolers with HCN and (2) create

an integrated companion program to support children’s caregivers in incorporating DBI at home. We anticipate that combining robust DBI literacy activities at home and school will result in family-school synergies that comprehensively support HCN children. EYEPlay Inclusion will capitalize on the strengths of the existing EYEPlay PD model to formally embed strategies for HCN learners into an inclusive teacher PD and extend the intervention to provide caregivers with DBI tools for shared book reading at home that support and reinforce classroom instruction.

A.6.1. Key Components of the EYEPlay PD. EYEPlay’s job-embedded PD partners teaching artists with classroom teachers, who across a school year, collaboratively progress through a systematic arc of learning (see Figure 1). Through a series of month-long units, classroom teachers learn to implement **Drama Frames**, or DBI facilitation strategies that can be adapted to use within existing classroom curriculum and materials. Drama Frames pair a drama-based strategy from the National Core Arts Standards with curricular objectives from regional (in this case, Arizona’s) Early Learning Standards. These Drama Frames are: (1) Pantomime + Receptive Language; (2) Character Development + Expressive Language; and (3) Group Storybuilding + Story Comprehension. Each **Unit** follows an “I do, We do, You do” model of skill development that scaffolds learning for classroom teachers, builds space for shared learning and reflection, and is targeted to each teacher’s needs. Each month-long unit combines classroom-based instruction, peer coaching, and meetings in a community of practice and includes six sessions (see Table 1).

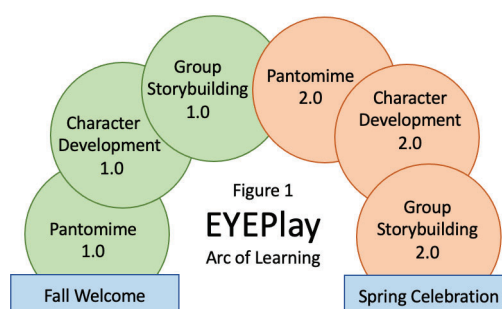


Table 1. EYEPlay Unit Sessions

Model Lesson	(“I do”) Teaching Artist (TA) teaches a lesson based in the Drama Frame.
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In-Service	Classroom Teachers (CT) and TAs meet in site-level or district-level cohorts develop facilitation skills to implement the Drama Frame
Team Lesson	(“We do”) TA and CT co-teach a lesson based in the Drama Frame
Planning	TA and CT hold a peer coaching session to plan a solo lesson
Solo Lesson	(“You do”) CT teaches a lesson based in the Drama Frame
Reflection	TA and CT hold a peer coaching session to reflect on the unit and identify student needs and successes to plan differentiated instruction
Model Lesson	(“I do”) Teaching Artist (TA) teaches a lesson based in the Drama Frame.

Each EYEPlay **lesson** (model, team, or solo) centers around a culturally- and linguistically-responsive picture book. Core concepts and vocabulary are introduced, scaffolded, and embodied multiple times to promote student learning through embodied participation (see Appendix J1 for sample lesson). The innovative EYEPlay lessons contain the following components (see Table 2):

Table 2. EYEPlay Lesson Components

Anticipatory Set	Foundational concepts and key vocabulary words introduced via multisensory elements (e.g., pictures, sounds, objects, etc.)
Relevance-building	Students encouraged to relate new concepts to prior knowledge and cultural/familial contexts, placing them in the position of “experts”
Story Sharing	Picture books shared through dynamic, dialogic reading, with verbal and kinesthetic points of participation (e.g., “How do you think the girl is feeling? Show me with your face and body”)
Creative Drama	Key vocabulary/concepts of the story explored with students by replaying actions, assuming character roles, and retracing characters’ emotional journeys, or creating their own ending as a group
Reflection	Concepts and vocabulary revisited through verbal and nonverbal modalities (i.e., kinesthetically and visually) as students reflect upon their drama experiences and relate it to their worlds to construct individually meaningful knowledge structures

A.6.2. Caregiver Programming. While Childsplay has previously implemented family/caregiver literacy learning using DBI strategies, this will be the first EYEPlay implementation that integrates the teacher PD with the home-based literacy learning as a core programmatic element. Previous family literacy programming has included:

- Bilingual materials for home distribution that reinforce learning achieved during DBI storytimes, including key vocabulary in families' home languages.
- Access to online videos with examples of DBI book sharing in multiple languages that families can experience and replicate at home.
- Evening/weekend bilingual Family Literacy Events hosted at school, where families experience DBI storytimes co-led by a teaching artist and classroom teacher, practice shared book reading skills, and receive books and materials to support at-home learning.
- Opportunities created through a community of learners for families to share successes, help each other, and provide teachers with additional insights to support their children.

The family intervention component of EYEPlay Inclusion seeks to:

1. Develop at-home DBI shared book reading strategies for improving the language and socioemotional development of preschoolers experiencing communication challenges;
2. Provide at-home activities to help families and teachers bond through shared literacy; and
3. Help culturally- and linguistically-diverse caregivers engage in language and literacy activities that facilitate strong growth in home languages as well as English.

A.6.3. Proposed Modifications. A **Design Team** composed of project personnel, teachers, caregivers, and other interested parties will develop, refine, and test a range of integrated teacher/caregiver learning experiences. Through iterative planning, designing, and implementation sessions, the Design Team will consider the questions in Table 3 to adapt programming to meet the literacy needs of HCN children in classrooms and their homes:

Table 3. Design Team Considerations

For Teachers	For Caregivers	For ASU/Childsplay
•What are the best asset-based drama strategies for HCN learners? For bilingual HCN learners?	•What are the best strategies for creating a community of learners that	•What is the ideal arc of learning that scaffolds engagement and learning

<ul style="list-style-type: none"> •What are the core learning and socioemotional objectives that are best supported by those strategies? •What are classroom routines and best practices for reading to HCN learners? For bilingual HCN users? •Will HCN users demonstrate higher engagement and comprehension if the creative drama exploration is incorporated into the reading of the text rather than as a separate section of the lesson? •How much replay/repetition is necessary to support learning of key concepts/ vocabulary and how might that replay occur over one or multiple sessions? •How might more multi-sensory engagement support learning? 	<ul style="list-style-type: none"> includes both caregivers and their students' teachers? •What are the foundational reading/picture reading strategies that caregivers need to support at-home reading for HCN learners? •What are the DBI strategies that caregivers are most willing to try at home? •Which caregiver DBI strategies lead to greatest child engagement? •What support materials (e.g., books, multisensory materials, videos) promote at-home DBI learning? 	<ul style="list-style-type: none"> for HCN students while building teachers' facilitation skills? •What is the correct sequence of Drama Frames and number of units? •What is the best combination of "I do, We do, You do" co-teaching to ensure teachers gain practice in scaffolding for individual student success? •How can each adult in the classroom – lead teacher, support instructors, individual student aides – learn to facilitate DBI individually and as a team?
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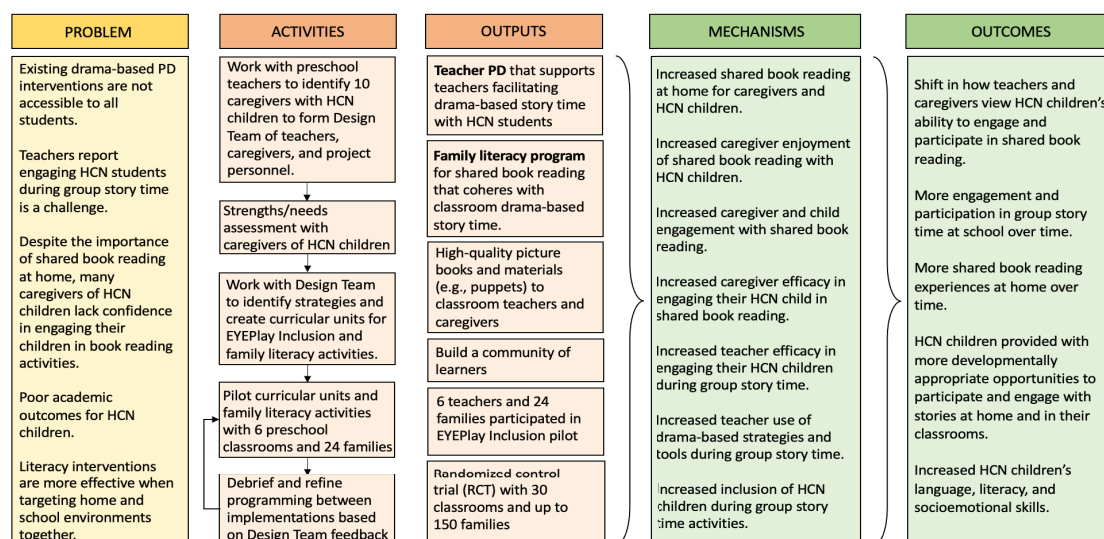
B. Quality of the Project Design

B.1. Quality of Conceptual Framework

EYEPlay's systematic approach to providing teachers with DBI PD has been shown to support early literacy development in diverse preschool and elementary students (Bernstein et al., 2022; Kilinc, 2023). One mechanism through which EYEPlay supports this learning is through embodiment. There is abundant evidence that providing opportunities to physically perform story events supports language and literacy. Preschool children who engage in physical enactment of stories are more likely to subsequently produce vocabulary words and recall story events (Biazak et al., 2010; Marley et al., 2007, 2010, 2011; Marley & Szabo, 2010). Children who participated in EYEPlay drama lessons produced significantly more story-relevant gestures compared to their control group peers during story retelling, which in turn predicted recall of story events (Bernstein et al., 2022).

Language and motor development are strongly linked from infancy (Angrave & Glenberg, 2007), and children with communication disorders often present with concurrent motor deficits (Hill, 2001). Yet, EYEPlay teachers with HCN students report benefits of those students participating in drama lessons. EYEPlay Inclusion capitalizes on this link between language and motor development to incorporate guided movement into story time to help HCN students build connections between their actions and the story. EYEPlay Inclusion also provides caregivers of HCN children with materials and strategies to help their children build these connections at home. Studies (e.g., Whitehurst et al., 1994) have demonstrated that school + home interventions (when compared to control or school only) are the most effective in supporting children's language development. The EYEPlay Inclusion logic model (in Figure 2) outlines how participation in EYEPlay Inclusion supports: 1) teacher and caregiver skill in DBI during story time and 2) HCN children's language, literacy, and socioemotional development.

Figure 2. EYEPlay Inclusion Logic Model.



B.2. Goals, Objectives, and Outcomes.

The primary goal of the proposed project is to experimentally test a DBI intervention for preschool teachers and families of children with HCN. To achieve this goal, the proposed project

follows the ADDIE model (Peterson, 2003) a model of program development and evaluation.

ADDIE stands for: **Analyze, Design, Develop, Implement and Evaluate**. Upon completion of the project, we anticipate having a fully developed PD ready for scaling to a larger multi-site RCT.

The ADDIE phases will occur as follows (see Table 4 Goals, Objectives, and Outcomes at each phase). **Phase 1: Analyze Learning and Infrastructure Needs and Available Resources of Preschool Caregivers of Children with HCN.** Using the Spencer Foundation funding, we are actively involved in Phase 1 and in Spring 2024 will begin Phase 2 with teachers. With *Education Innovation and Research* Program funding, we will repeat this work with caregivers in the 24/25 school year (Year 1). The Childsplay/ASU team will focus on understanding HCN students' home learning contexts in relationship to classroom learning contexts by forming a ***Design Team*** of teachers, caregivers, and other stakeholders to identify the needs, strengths, and skills of caregivers. Through focus groups and observations of caregivers reading with their children, Childsplay and the Design Team will identify strategies and create programming for caregivers of HCN children.

Phases 2 and 3: Design and Develop Learning Experiences. In Year 2, we will use the strategies and programming components identified in Phase 1 to create an integrated teacher and caregiver delivery model that reflects best practices, integrates with existing routines in integrated and self-contained classrooms, and provides coherence between at-home and classroom learning. The entire curricular arc of the teacher and caregiver intervention will be piloted and refined with six classroom teachers and four HCN children and their caregivers from each class (N = 24 HCN families). The six classes and their respective families will be split into two groups (Groups A and B). Initial instructional materials will be broken into six modules, tested with Group A over three weeks and refined based on teacher and caregiver feedback from

focus groups and key informant interviews. The refined materials will then be tested with Group B over three weeks with the teachers and caregiver feedback gathered to further refine the materials at the end of each unit. These test/refine/test cycles will be performed six times over the course of the school year. Teacher, caregiver, and child level data will be collected pre- and post-intervention to develop and test instrumentation and establish initial estimates of treatment effects. At the end of Year 2, the integrated materials will be further revised and packaged for RCT implementation in Phase 4.

Phase 4: Implement an RCT that meets WWC Group Design Standards *Without Reservations*. The RCT will be conducted with 30 preschool classrooms with HCN students, randomly assigned to one of two conditions: (1) EYEPlay Inclusion experimental treatment, in which teachers, families, and children receive EYEPlay Inclusion; or (2) business-as-usual control condition, in which classroom activities continue as typically delivered.

Phase 5: Evaluate to Provide Summative Conclusions. The goal of this phase is to determine whether preschool teachers, caregivers, and HCN children benefit from EYEPlay Inclusion in accordance with the conceptual model. During the RCT experimental examination of EYEPlay, three to five HCN students/caregiver dyads per classroom will be randomly selected to participate in the evaluation, resulting in a total sample of 90-150 dyads. Participating teachers and caregivers will complete measures at baseline and post-intervention to assess skills, knowledge, and self-efficacy in DBI storytime instruction. Video recordings of storytime will be collected to examine teacher and caregiver change in DBI skills and student change in engagement, time on-task, and challenging behavior during story time. Children will be assessed pretest and posttest on emotion knowledge and story comprehension. Teachers and caregivers

will participate in focus groups to further refine materials. Finally, the cost per student, minus administrative- and evaluation-related expenses, will be determined to inform scaling efforts.

Table 4. Goals, Objectives, and Outcomes.

Goal 1: Analyze Learning and Infrastructure Needs and Available Resources of Preschool Caregivers of Children with High Communication Needs.
Obj 1a: Conduct needs, skills, and strengths assessment with representative caregiver/child dyads (N = 10) through surveys, interviews, and observations of story time activities.
Obj 1b: Review literature for DBI and shared book reading related applications, activities, materials, and instruments to complement existing EYEPlay resources.
Obj 1c: Conduct learning in arts and disabilities through expert reviews and site visits
Obj 1d: Create Design Team to inform program development, implementation refinement, and evaluation.
Outcomes: Needs of teachers, caregivers and students identified and synthesized with best practices from the evidence-based literature and the field
Goal 2: Design Home Learning Experiences for Children with High Communication Needs.
Obj 2a: Develop and test curricular units with 10 caregiver/child dyads, revising program components in response to caregiver feedback.
Obj 2b: Interview caregivers about specific design elements during the design process.
Outcomes: Home learning instruction modules developed that are appropriate for targeted high-needs preschool children.
Goal 3: Develop Intervention curriculum that integrates classroom and home experiences.
Obj 3a: Develop learning progressions and protocols for caregivers to apply at home.
Obj 3b: Create at-home DBI shared book reading materials for families to apply at home.
Obj 3c: Integrate at home and classroom experiences into EYEPlay Inclusion.
Obj 3c: Pilot EYEPlay Inclusion PD with teachers, caregivers and children from six classrooms.
Obj 3d: Interviews with teachers about specific design elements and overall learning materials and progressions.
Obj 3e: Interviews with caregivers and, when appropriate, HCN children about specific design elements and overall learning materials and progressions.
Outcomes: Fully developed intervention for classroom and home that are thematically linked and appropriate for the target population of HCN children.
Goal 4. Implement Randomized Controlled Trial with Cohort of Teachers (N = 30) of HCN Preschoolers that Meets <i>WWC without Reservations</i> Criteria.
Obj 4a: Enroll a cohort of preschool classrooms randomly assigned to EYEPlay or business-as-usual conditions.
Obj 4b: Collect baseline data on teachers, caregivers, and children (n = 3-5 caregiver/child dyads per classroom).
Obj 4c: Collect intermediate and final observations of classroom application and direct measurements of teacher beliefs, knowledge and application of classroom story time.
Obj 4d: Collect intermediate and final observations of at-home caregiver/child dyad engagement, comprehension, enjoyment, motivation and learning during home reading.

Obj 4e: Collect fidelity of treatment (integrity, differentiation, and dosage) data from teachers and parents for each unit.
Outcomes: Carefully implemented EYEPlay classroom and home instructional programming. Data collected and scored with high rater agreement and/or score reliability when appropriate.
Goal 5. Evaluate Efficacy of EYEPlay Intervention, Disseminate Study Findings, and Prepare for Higher Level of Scalability
Obj 5a: DBI and BAU treatment condition evaluated on baseline measures to assure baseline equivalence (standardized effect size less than .05) on key covariates.
Obj 5b: Data from RCT analyzed and summative results reported to stakeholders, presented at conferences, and published in peer reviewed journals.
Obj 5c: Interview all participating intervention teachers and a subset of caregiver/child dyads to identify strengths and limitations of EYEPlay's DBI learning experiences.
Obj 5d: Based on summative and interview results, refine EYEPlay learning experiences and prepare for the next level of scaling.
Obj 5e: Calculate cost per student after accounting for administrative and evaluation related expenses to determine the appropriate next steps for upward scaling.
Outcomes: High levels (> 80%) teacher and caregiver fidelity of treatment. Statistically significant and greater than 10% difference between EYEPlay and BAU teachers on beliefs, knowledge, and attitudes towards DBI. Statistically significant differences greater than 10% in preschool children's language and socioemotional growth. EYEPlay caregiver/child dyads report statistically greater enjoyment and competence in at-home literacy activities.

B.3. Target Population

The proposed project is designed to address the needs of inclusive preschool teachers and caregivers of young children with HCN by providing asset-based tools and strategies to their teachers and caregivers that promote language, literacy, and socioemotional development in the languages the children speak. Therefore, we specify two target populations: 1) inclusive preschool teachers, and 2) caregivers of preschool children with HCN.

Teacher Population. Preschool classroom teachers of children with HCN are one of our target populations. Teachers of children with HCN must have the skills to adapt lessons and materials to their students' abilities. PESD provides an ideal context for developing and testing inclusive preschool DBI for 3- to 5-year old children with IEPs. PESD preschool classroom teachers provide play-based instruction focusing on the social, emotional, cognitive, linguistic and physical development needs of HCN children to ensure their academic readiness for the

primary grades. The preschool teachers provide HCN children opportunities to learn alongside peer models. Peer models are typically developing children who through social interactions and observational learning support the learning of HCN children. PESD teachers meet the needs of HCN preschool children with three classroom levels. The levels differ in ratios of children with disability-related IEPs to typically developing peer models, as well as severity of children's disabilities. Preschool classroom ratios of children with IEPs to children who are peer models are 2 to 1 peer model (Level 1), 1 to 1 peer model (Level 2) and 1 to 3 peer models (Level 3).

Parents/Caregivers and Preschool Children. Parents/caregivers are children's first teachers. Our caregiver population reflects the demographic characteristics of the children served by the district. PESD serves a diverse high needs population of students with greater than 44% living below the federal poverty level. The preschool student population is 59% Hispanic, 22% White, 9% African American, 7% Multiple Races and 3% unknown. In addition, with 13 different languages spoken, 18% of children served by the district are English language learners. Fewer than 38% PESD children reach basic or higher levels of reading proficiency by third grade. Several of our previous partner districts have comparable student demographics.

C. Quality of Project Personnel

The Childsplay/ASU partnership spans 15 years and encompasses five independent RCT or quasi-experimental design studies (see www.literacyatplay.org for full partnership history). We have consistently recruited personnel who are underrepresented due to race, color, national origin, gender, age, or disability. The leadership team has expertise in drama-based instruction, child development, learners with special needs, language development, socioemotional development, learning strategies, research design, psychological measurement, and statistical analysis (see Appendix B for resumes of key personnel). Childsplay staff with the support of

██████████ ██████████ ██████████ and ██████████ are responsible for intervention development and implementation. ██████████ ██████████ and ██████████ are responsible for intervention evaluation.

C.1. Arizona State University (ASU) Faculty

PI, is an Associate Professor in the Mary Lou Fulton Teachers College (MLFTC). He is an educational psychologist with expertise in research design, psychological measurement, and statistical analysis, and cognitive learning strategies. He currently is the PI of an ongoing (2018-2023) RCT examining EYEPlay with preschool teachers (DoEd Assistance for Arts Education Development and Dissemination grant program), as well as Co-PI on the ongoing Spencer grant (2023-2025). Responsibilities: evaluation research design and execution, statistical analyses, dissemination of results, and reporting requirements.

Co-PI, is an associate professor of early childhood in MLFTC. She is an educational linguist with expertise in first and second language and literacy development and qualitative and mixed-methods research. is the PI of the ongoing Spencer grant and Co-PI of the ongoing RCT. Responsibilities: ensuring that materials and strategies align with best practices for supporting English language and bilingual language and literacy learning, training teaching artists in early language and literacy learning, and overseeing collection of and qualitative analyses of video, interview, and focus group data.

Co-PI, is an Associate Professor in the MLFTC. is a psychologist and behavior analyst who specializes in education and assessment of students with disabilities. She has extensive experience working in diverse school settings and assessing non-verbal learning behaviors. She is Co-PI of the ongoing Spencer grant. Responsibilities: support the development of EYEPlay Inclusion; consult with teachers, teaching artists, and caregivers on adapting DBI strategies for HCN children; dissemination.

██████████ Co-PI, is an Assistant Research Professor in the MLFTC. She is a child development researcher with expertise in young children's socioemotional development (ages 0-5), family literacy programming, and community program evaluation. ██████████ ██████████ is project manager of the ongoing RCT and Co-PI of the ongoing Spencer grant. ██████████ ██████████ will be the project manager of the proposed project. Responsibilities: managing daily operations, scheduling observations/assessments with teachers and caregivers, designing and implementing the evaluation study, data analysis, and dissemination.

██████████ Co-PI, is an Associate Professor of Early Childhood Education in the MLFTC. His research interests and grants are focused on understanding programmatic features related to high-quality professional development experiences in drama-based instruction for early childhood teachers. ██████████ is Co-PI on the ongoing RCT. Responsibilities: PD design and dissemination of findings.

ASU Undergraduate and Graduate Students. Language assessment and coding of assessments will be carried out by advanced undergraduate/graduate student testers recruited from MLFTC and the Department of Speech and Hearing Science at ASU. Student testers will have expertise in early childhood education and/or language development, will be bilingual in Spanish and English, and will have experience developing rapport with young children. Testers will be trained by [REDACTED], [REDACTED], [REDACTED], and [REDACTED].

C.2. Childsplay Personnel.

Childsplay is an Arizona-based professional theatre company that since 1977 has provided teacher PD or performed for more than five million students, teachers, and families (see <https://www.childsplayaz.org>). Alongside the 200,000 children who experience Childsplay

performances each year, nearly 5,000 children experience drama-based learning experiences in their classrooms through extensive education outreach programs.

██████████ is a drama integration practitioner with more than 15 years of expertise in program management, curricular design, professional development, and arts integration for PreK-6th grade students and teachers. She has led the project design and implementation for every iteration of EYEPlay, supported by 15 years of continuous grant funding including grants from the U.S. Department of Education and the Spencer Foundation. She will lead Childsplay's implementation of EYEPlay, including caregiver curriculum development, hiring and training of teaching artists, developing and maintaining relationships with partner schools, classroom teachers, and caregivers ensuring program fidelity across all settings, addressing all grant reporting requirements and fiscal management.

██████████ is a drama educator with expertise in arts integration, program development, and theatre administration. Prior to work as EYEPlay project director, she served as a teaching artist for Childsplay's PD programs with educators. She will co-lead programmatic implementation for EYEPlay, including staffing, stewarding relationships with partner schools, caregiver curriculum development and facilitating training sessions with teaching artists, classroom teachers and caregivers.

██████████ has nearly a decade of experience as a teaching artist, with much of that time spent in arts integration programming, and training and experience delivering one-on-one instruction within an intensive special education program serving preschool and elementary-aged learners in the Connecticut public school system. She will manage the EYEPlay program, where her responsibilities will include coordinating personnel, schedules, and data collection on the Childsplay side of the project. She will also serve as a peer coach and teaching artist.

■■■■■ is a bilingual master teacher with more than a decade of experience in delivering professional development for preschool and elementary teachers and students. Her specialties include working with preschool students, bilingual and dual language instruction, family engagement, and working with high needs students including students with medical complexities. She will serve as the lead teaching artist and will participate in the Design Team and all elements of program design and implementation.

C.3. Phoenix Elementary School District Personnel

■■■■■ M. ED is principal of Faith North Elementary School and oversees all developmental preschools in PESD. ■■■■■ is the Instructional Enrichment and Intervention Specialist for PESD preschool and participated as a classroom teacher in the EYEPlay Program. ■■■■■ and ■■■■■ participated in the development of the proposed project and will serve on the Design Team. Both are Co-PIs on the ongoing Spencer grant. They will also hold primary responsibility for recruiting teachers and caregivers to participate in the program and ensuring access to student data.

C.4. Consultants

■■■■■ Professor and Chair in the Department of Communication Sciences and Disorders at The University of South Florida. She is the director of the Bilingual Language and Literacy Laboratory. She is a bilingual speech-language pathologist and specializes in oral language and emergent literacy development and in prevention of academic difficulties in bilingual children. ■■■■■ is Co-PI on the ongoing RCT and Spencer grant. ■■■■■ will collaborate with ■■■■■ to ensure that materials and assessment approaches are appropriate for bilingual families.

██████████ is an Assistant Professor of Speech-Language Pathology at Midwestern University in Glendale, Arizona and a bilingual Speech-Language Pathologist. She has significant clinical experience and project-related research experience with bilingual children who have a variety of communication disorders. She will support the creation of culturally sensitive caregiver training sessions and resources.

D. Quality of the Management Plan

We have well-established responsibilities among team members that inform the timelines and milestones for the proposed project (see Table 5). Researcher objectivity will be maintained by establishing clear separation of responsibilities in two key areas: 1) intervention development and implementation and 2) intervention evaluation. Childsplay staff with the support of ██████████ ██████████ and ██████████ are responsible for intervention development and implementation. ██████████ ██████████ and ██████████ are responsible for intervention evaluation.

Table 5. Responsibilities, Timelines, and Milestones.

Activities/Milestones	Responsible Party*	Y1	Y2	Y3	Y4
*Roles: ASU, Childsplay (CP), Design Team (DT), Phoenix Elementary (PHX). Years: Y1 = 10/24-9/25, Y2 = 10/25-9/26, Y3 = 10/26-9/27, Y4 = 10/27-9/28					
Phase 0: Establish Childsplay and ASU Infrastructure					
Hire and train student workers and Childsplay staff.	ASU, CP	X			
Establish grant management and reporting structure	ASU, ASU	X			
Recruit Design Team including school staff, teachers and caregivers	ASU, CP, PHX	X			
Recruit teachers and caregivers within PESD	CP, PHX	X			
Complete IRB and District review requirements	ASU, CP	X			
Phase 1. Analyze Learning and Infrastructure Needs and Available Resources of Preschool					
Research best practices, conduct site visits and attend trainings with arts and disability experts	CP, DT, C	X			
Conduct an asset and needs assessment of current HCN preschool students and caregivers.	ASU, CP, DT	X			
Phase 2. Design Complete Set of Instructional Materials for Classrooms and Homes					
Create DBI lesson plans, unit structure, curricular arc	CP, DT	X			

and caregiver activities					
Phase 3: Develop Test and Iterate Program Design in 6 Pilot Classrooms					
Implement DBI PD and family activities in Cohort A (3 classes), iterate/implement in Cohort B (3 classes)	CP		X		
Test and revise instruments	ASU		X		
Hold monthly meetings with Design Team	ASU, CP, DT		X		
Recruit RCT Classrooms	ASU, CP		X		
Phase 4: Implement Randomized Controlled Trial Pilot Study with teachers (N = 30) of High Needs Preschoolers.					
Implement DBI PD and family literacy activities in randomly assigned implementation cohort (15 DBI and 15 BUA classrooms)	ASU, ASU, CP			X	
Collect baseline and post-intervention data on teachers, caregivers, and children.	ASU			X	
Record teacher, caregiver, and child attrition and indicators of diffusion of treatment	ASU			X	
Analyze collected data for baseline differences	ASU			X	
Phase 5: Evaluate Efficacy of EYEPlay Intervention, Disseminate Study Findings and Prepare for Higher Level of Scalability					
Perform summative analysis of key outcomes	ASU				X
Complete grant-related reporting requirements	ASU				X
Disseminate findings to district partners, caregivers, and community.	ASU, CP				X
Disseminate findings through peer-reviewed conferences and publications.	ASU, CP				X
Create cost analysis and plan for replication	ASU, CP				X

E. Quality of the Project Evaluation

The evaluation of *EYEPlay Inclusion* will be conducted by Arizona State University personnel. The primary research questions are outlined in Table 6.

Table 6. EYEPlay Inclusion Research Questions

RQ1	What are the effects of the <i>EYEPlay Inclusion</i> intervention on student language development, story recall, and emotion knowledge? (Impact)
RQ2	What are the effects of the <i>EYEPlay Inclusion</i> intervention on teacher beliefs, usage, and knowledge of DBI? (Impact)
RQ3	What are the effects of the <i>EYEPlay Inclusion</i> intervention on caregiver beliefs and application of DBI shared book reading? (Impact)

RQ4	Do <i>EYEPlay Inclusion</i> impacts on child, caregiver, and teacher outcomes differ by subgroups? (Moderation)
RQ5	To what extent are teachers and caregivers applying the <i>EYEPlay Inclusion</i> learning experiences? (Implementation)

E.1. Meeting WWC Standards 4.1 Without Reservations.

In Year 3, 30 teachers of HCN preschool students will be randomly assigned to one of two conditions: Intervention (n = 15) or BAU (n = 15). Intervention teachers will receive the EYEPlay Inclusion program. Within each classroom, three to five students with communication-focused IEPs will be randomly selected. These students and their caregivers will contribute student- and caregiver-level data. Based on power analysis, growth models with student learning outcomes measured three times over the school year (fall, winter, and spring), condition as a between-subjects factor applied at the teacher level, a type I error rate of .05, ICCs of .05 at student and classroom levels, 30% of the variance in dependent variables explained at the student level (level 1), and 10% at the teacher level (level 2), the proposed study will have power of .80 to identify a Minimum Detectable Effect Size (MDES) of .42 (N = 90 students) to .35 (N = 150 students) between conditions.

The proposed study meets WWC’s “Evidence Standards without Reservations.” To meet this criterion, studies are required to document specifics for random assignment, demonstrate baseline equivalence, document overall and differential attrition, prevent diffusion of treatment, and not confound teachers with conditions. Although random assignment should result in statistically equivalent groups, the conditions will be examined for statistical balance at baseline (Guo & Fraser, 2014) on known predictors of student learning. In addition, we will report and compare attrition rates in both groups. Further, WWC requires the level of analysis to match the unit of assignment. In the case of teacher level (level 2) outcomes, we accommodate this requirement by analyzing the data with the teacher as the unit of analysis. For student/caregiver

level outcomes, we address this requirement by using growth models with the analysis reflecting the intervention applied at the teacher level.

E.2. Performance Feedback and Assessment of Progress.

The formative evaluation procedures of the project will provide feedback that permits periodic assessment of progress toward achieving intended outcomes. First, ASU EYEPlay evaluation personnel will provide ASU and Childsplay intervention personnel data-based feedback. This feedback data will be collected from teachers and caregivers using: brief surveys to assess perceptions of intervention activities and materials; observations of applications of intervention materials; and focus groups. Second, teachers and caregivers will be asked to keep implementation diaries using cell phones. The implementation diaries will ask teachers and caregivers to briefly report their experiences with the intervention. During the design and development phases (Year 2) these periodic assessments will occur every three weeks so information collected from Group A can inform the refined intervention with Group B. Evaluation personnel will create standardized reports summarizing the survey data, observations and diaries to facilitate intervention development and refinement. These methods of periodic assessment will continue during the RCT for the purpose of assessing treatment fidelity.

E.3. Key Project components, Mediators, Outcomes and Acceptable Implementation.

Several measures will be used to assess the implementation, feasibility and impact of *EYEPlay Inclusion* (See Table 7). In addition, demographic characteristics will be collected for sample description and included as covariates, mediators and moderators in statistical analyses. See Appendix J2 for detailed descriptions of measures.

Table 7. Project Measures

Variable	Measure	Timing of Administration
Student Outcomes (RQ1)		
Story recall	The Prop-Assisted Student Story Comprehension Measure (PASSComM).	Beginning, middle and end of school year
Emotion Knowledge	Emotion Matching Task (EMT).	Beginning, middle and end of school year
HCN Student Engagement	The Storytime Engagement and Participation Observation Protocol (SEAPOP).	Beginning, middle and end of school year
Literacy, Language, Mathematics, Cognitive, and Socioemotional	Teaching Strategies Gold (TSG).	Beginning, middle and end of school year
Caregiver Outcomes (RQ2)		
Caregiver Shared Book Reading confidence, efficacy and enjoyment.	Shared Book Reading Caregiver Experience Scale	Beginning and end of the school year.
Use of DBI Book Reading Strategies.	Caregiver Use of Shared Book Reading Strategies	Beginning and end of the school year.
Teacher Outcomes (RQ3)		
Teacher Drama Beliefs about classroom management, creative thinking, and emotions	Teacher Beliefs about Drama Scale.	Beginning, middle and end of school year
teacher perceptions of students' deficits and assets in engagement in DBI	Teacher Perceptions of Student Drama Skills Scale.	Beginning, middle and end of school year
DBI self-efficacy and confidence	Teacher Success and Confidence in Applying Drama-Based Instruction Scale.	Beginning, middle and end of school year
Teacher Self-Efficacy	Teacher Sense of Efficacy Scale.	Beginning and end of the school year.
Moderators (RQ4)		
Demographic Characteristics	Teacher Demographic Survey	Beginning of school year
	Child/Caregiver Demographic Survey	Beginning of school year
Implementation (RQ5)		
Application of EYEPlay Inclusions components	Teacher Drama Facilitation Rubric	After each instructional module.
Frequency, duration, and quality of evidence-based and DBI read-aloud strategies.	Teacher Use of Strategies for Storytime Drama (TUSSD).	Beginning, middle and end of school year
Usability, Feasibility, Acceptability.	Teacher and Caregiver surveys	Periodic cycles to inform program development and application
Implementation diaries	Teacher and Caregiver Cell Phone Diary Reporting	Periodic cycles to inform program development and application

E.3.1. Mediators and Moderators. Teacher DBI beliefs, skills, and application may mediate student learning. Teacher confidence, efficacy, and beliefs and student subgroup membership (e.g., English Language Learner status) are possible moderators of DBI effectiveness. These factors will be entered into the models to ascertain whether they moderate change scores on the primary outcomes.

E.3.2. Outcomes. We will measure variables at the student, caregiver and teacher levels to determine DBI-related factors associated with: 1) students' comprehension, emotion knowledge, engagement, and achievement; 2) caregiver's shared book reading confidence, efficacy, enjoyment, and strategy application; and 3) teachers' DBI-related beliefs, self-efficacy, and application and general teacher self-efficacy and beliefs about preschool children's abilities.

E.3.3. Acceptable Implementation. Multiple methods will be used to assess program fidelity, including self-reported program activities, teaching artist report of teacher performance during lessons, and observational coding of teacher lesson delivery. Resulting data will be analyzed with descriptive statistics to determine mean scores are above the neutral midpoint of the scale and variability of application is low. We also expect teachers and caregivers who rate the intervention highly will experience greater success. To examine these relationships, we will correlate teacher and caregiver intervention perceptions with the outcomes. Dose response will be examined with levels of PD participation as measured by attendance and observed classroom application of PD materials. Dose response will be split into quartiles and entered to determine whether dosage impacts pre- to post-test changes. To assess the social validity (Wolf, 1978) of the intervention, teachers and caregivers will be provided easy-to-complete measures of feasibility, enjoyment, and willingness to continue along with open-ended items providing opportunities to suggest changes.

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