

*Start With the Art: Arts Integration + Co-Teaching: A Transformative Approach to Increasing Academic Achievement and Fostering Socioemotional Development in Elementary Students*  
**Education Innovation and Research Program - Early-Phase Grant**

**Table of Contents**

**Introduction.....1**

**A. Significance.....1**

    A.1. Developing New Strategies to Foster Academic Achievement & Attainment: Building on Existing Arts Integration Strategies.....2

    A.2. Dissemination of Results.....5

**B. Project Description.....6**

    B.1. Conceptual Framework.....8

        B.1.1. Presenting Diverse Learning Opportunities.....8

        B.1.2. Enhancing Retention of Academic Content.....9

        B.1.3. Providing Opportunities for Socioemotional Development.....10

        B.1.4. Theory of Change.....11

    B.2. Goals, Objectives, and Outcomes.....13

    B.3. Addressing the Needs of the Target Population.....14

**C. Project Resources and Management Plan.....16**

    C.1. Responsibilities, Timeline, and Milestones.....16

    C.2. Key Project Personnel.....17

    C.3. Project Costs.....19

    C.4. Procedures for Ensuring Feedback and Continuous Improvement.....19

**D. Quality of the Project Evaluation.....19**

    D.1. Evaluation Methods.....20

        D.1.1. Evaluation Participants.....22

        D.1.2. Evaluation Measures.....24

        D.1.3. Data Analysis.....26

    D.2. Provision of Performance Feedback and Periodic Assessment of Progress.....27

    D.3. Contribution to the Field.....28

**Optional Narrative Files Reference Table.....29**

**Bibliography.....**

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**Introduction**

Young Audiences Maryland (YAMD), in collaboration with Prince George’s County Public Schools (PGCPS), WolfBrown, and West Chester University (WCU) proposes an Early-Phase Grant for the Education Innovation and Research (EIR) Program that meets the following priorities:

- Absolute Priority 1 – Demonstrates a Rationale
- Absolute Priority 4 – Field Initiated Innovations – Fostering Knowledge and Promoting the Development of Skills That Prepare Students to Be Informed, Thoughtful, and Productive Citizens
- Competitive Priority 2 – Innovative Approaches to Addressing the Impact of COVID-19 on Underserved Students and Educators
- Competitive Priority 3 – Promoting Equity and Adequacy in Student Access to Educational Resources and Opportunities

**A. Significance**

Stark disparities in educational achievement and attainment separate students placed at risk by poverty from their more affluent peers, as documented by an extensive body of research conducted over the course of many years (cf., Duncan & Murnane, 2011). Gaps in achievement among late-elementary, middle-, and high-school students can be traced, in part, to discrepancies in early school success and to pervasive inequalities in students’ access to early educational resources and opportunities (Duncan, Magnuson, Kalil, & Ziol-Guest, 2012; Noble, McCandliss, & Farah, 2007). These inequalities have been exacerbated by the novel coronavirus 2019

(COVID-19), which has disproportionately impacted children and families from lower-income households (U.S. Department of Education, 2021) and younger children from those households in particular (D’Souza, Fensterwald, & Willis, 2021).

With support from the Education Innovation and Research (EIR) Program, YAMD will work in partnership with the PGCPs and researchers from WolfBrown and WCU to develop and iteratively refine a novel, coherent program of arts-integrated instruction that incorporates evidence-based strategies to benefit academic performance and socioemotional development among young children (i.e., those attending kindergarten through third grade) placed at risk by poverty. There is substantial evidence that arts-integrated instruction fosters academic achievement and attainment among children placed at risk by poverty (see a meta-analysis by Robinson, 2013), including evidence from an experimental study funded by the Institute of Education Sciences (Hardiman, Rinne, & Yarmolinskaya, 2014). However, at present the mechanisms that drive these positive effects on students’ academic achievement remain unclear. They may be due, in part, to the ways in which arts-integrated instruction enhances their retention of academic content, but they may also be attributable to the ways in which arts-integrated instruction promotes students’ socioemotional development – that is, the skills that prepare students to be informed, thoughtful, and productive individuals and citizens (see Section B.1. Conceptual Framework, below). The evaluation of the proposed project constitutes a rigorous inquiry into the links between arts-integrated instruction and academic performance among students placed at risk by poverty, many of whose education has been disproportionately impacted by the novel coronavirus (COVID-19).

#### A.1. Developing New Strategies to Foster Academic Achievement & Attainment:

##### Building on Existing Arts Integration Strategies

There is no single strategy or approach to implementing arts-integrated instruction that is commonly accepted as the most effective for fostering students' academic achievement or socioemotional development (Holochwost, Goldstein, & Wolf, 2021). Rather, there is a tremendous number and variety of existing strategies, some of which have been demonstrated to foster these outcomes among students. Based on previous research, the proposed project will combine the most promising of these field-initiated innovations into a new arts-integrated program designed to foster students' academic achievement and socioemotional development.

In their previous work with Baltimore City Public Schools, YAMD has drawn on select existing strategies to create their Summer Arts Learning Academy (SALA), a six-week, full-day summer program that for each of the past four years has served approximately 4,000 elementary-school students, nearly all of whom are from low-income households. The two strategies at the heart of the SALA approach to arts-integrated instruction are collaborative lesson planning and co-teaching. Efforts at arts integration may suffer from a lack of planning or preparation, resulting in classroom teachers struggling to make use of arts materials they themselves do not understand, or under-prepared teaching artists being thrown into a classroom without any knowledge of the academic content students are supposed to be learning. The SALA approach is designed to ensure that both educators' and students' experience is entirely different. Classroom teachers and teaching artists work together to collaboratively plan a lesson after identifying both the academic *and* arts learning objectives that lesson is intended to address, and then co-teach the lesson to students, thus achieving true arts integration. In 2020, this approach was recognized by the National Summer Learning Association when SALA won the Excellence in Summer Learning Award. Recently, U.S. Secretary of Education, Miguel Cardona, visited a SALA site and shared that, "SALA in Spanish means living room. Living rooms are where families come

together and they grow together. That’s what I saw here today” (“Young Audiences Shares the Joy of SALA!”).

Collaborative planning and co-teaching strategies will form the core of the proposed program for which we request support. However, there are three key differences between the proposed program and SALA: first, it will be conducted in partnership with PGCPS schools. Second, it will take place over the course of an entire academic year, rather than the summer, allowing students to receive arts-integrated instruction over a much longer period of time and in their classrooms at the schools they regularly attend. Third, and perhaps most important, **the proposed program will incorporate four existing arts-integrated instructional strategies that have been demonstrated to foster the academic achievement and socioemotional development of students, and, in particular, among students placed at risk by poverty:**

- 1) Using arts activities, modalities, and examples to foster students’ engagement in the classroom.
- 2) Using arts experiences and the associated potential for emotional expression through the arts to allow students to experience a wider range of emotional experience than is often possible in the course of regular classroom activities, and thereby, to provide students with opportunities to exercise their capacity for emotion regulation.
- 3) Using students’ experiences of setbacks and failure in their artistic work, together with growth-oriented responses to those failures by classroom teachers and teaching artists, as a way to develop students’ perseverance.
- 4) Capitalizing on the potential for collaborative work presented by artistic endeavor to foster students’ positive peer relationships.

As the enumeration of these strategies makes clear, **the proposed project is extraordinarily responsive to the priorities for the EIR grant program** identified at the beginning of this narrative. It will develop an evidence-based, field-initiated program of arts-integrated instruction designed to: a) improve the academic performance of students placed at risk by poverty; and b) develop students' emotion regulation (a key component of self-regulation), perseverance, and positive relationships with their peers. Thus, the project is highly-responsive to Absolute Priority 4. The project will establish and sustain a two-way, mutually-respectful collaboration between PGCPS educators (i.e., classroom teachers) and YAMD teaching artists as they plan and deliver arts-integrated lessons designed to address students' academic and socioemotional needs, in part by re-engaging those students in the classroom following over a year of educational disruption precipitated by the COVID-19 pandemic. Thus, the project is highly-responsive to Competitive Priority 2. This re-engagement will be accomplished by expanding access to a set of teaching and learning strategies that have been demonstrated to be effective in promoting student learning – namely, the strategies of arts-integrated instruction – and that, by offering students instruction in the arts, simultaneously expand access to a well-rounded education for underserved students. Thus, the project is also highly-responsive to Competitive Priority 3.

#### A.2. Dissemination of Results

The results of the project will be shared with four audiences - families, educators, policymakers, and researchers - through public events, conference presentations, publications, websites and social media. All key personnel regularly present at meetings of educators and policymakers, including the Arts Education Partnership (AEP) and the National Association for the Education of Young Children (NAEYC). Moreover, [REDACTED] and [REDACTED] present at

meetings attended by policymakers and researchers, including those of the Society for Research in Child Development (SRCD) and the Society for Research in Educational Effectiveness (SREE). [REDACTED] and [REDACTED] have also both published widely, both separately and together, in peer-reviewed journals, including *Child Development*, *Psychology of Aesthetics, Creativity, and the Arts*, and the *Journal of Research in Educational Effectiveness*. Presentations and publications will be announced on the websites and social media accounts of YAMD and WolfBrown, which will also be used to highlight project activities. Perhaps most important, YAMD and PGCPS will convene annual meetings toward the end of each academic year to share emerging findings from the project with PGCPS parents and educators. These events will feature presentations by teachers and teaching artists, examples of students' work, and question and answer sessions with key project personnel.

Dissemination activities will begin in the fall of 2022, and will focus on the initial round of program implementation. As the program progresses and preliminary findings emerge, these will become the focus for our dissemination efforts.

## **B. Project Description**

Although the precise nature of the proposed program will be iteratively refined throughout, it will follow the same essential format in each of the four academic years that it occurs. The program year will begin in the mid- to late-spring with the recruitment of classroom teachers and teaching artists into the program cohort for the coming academic year. These educators will participate in a **Training Institute** that will take place in late summer, and that will be offered as an extension of the Prince George's Artist Teaching Institute (PGATI), a long running, highly respected summer professional development experience for which PGCPS

teachers receive continuing education credits and occurs over the course of three full days (8 hours/day).

The Training Institute will add two additional, full days of instruction to PGATI in which classroom teachers and teaching artists will receive instruction in collaborative lesson planning, co-teaching techniques, and arts-integrated instructional strategies that have been demonstrated to foster students' academic performance and the domains of socioemotional development specified as outcomes for the program: emotion regulation, perseverance, and positive relationships with their peers.

In the academic year following the Training Institute, classroom teachers and teaching artists will each engage in several cycles of **co-planning, co-teaching, and instructional coaching**. The course of co-teaching and instructional coaching (arts integration specialists and content leads) will occur in four rotations, each lasting for approximately four weeks. At the beginning of each rotation, a classroom teacher and teaching artist (who both attended the Training Institute) will be paired and will spend a full-day Saturday session working with YAMD instructional coaches who are arts integration specialists and content specialists for literacy and math, to develop a collaborative lesson plan that addresses academic and arts learning objectives for the coming month. Over the course of that month the classroom teacher and teaching artist will co-teach one lesson in math and English Language Arts (ELA) per week. Each teacher/artist pair will be observed at least once per rotation by the instructional coach, who will collect data for use in program refinement using an observational measure (see Section D.2. below) and then share these data with the classroom teacher and teaching artist. Instructional coaches also assist in co-planning with classroom teacher and teaching artist pairs as they plan lessons for subsequent weeks. Following the rotation, the full cohort will convene for individual



debriefing and reflection with their instructional coach and content lead and then the teaching artist will be paired with another classroom teacher at the same school and the process will restart as the second of the four rotations. Each classroom teacher will have the opportunity to be paired with 4 teaching artists of varying artistic disciplines (music, dance, theatre, visual art, and media) to provide a well-rounded experience for each classroom teacher and their students.

### B.1. Conceptual Framework

As noted above, arts-integrated instruction has the potential to foster students' academic performance (Hardiman et al., 2014), and, in particular, to foster both academic performance and socioemotional development among children placed at risk by poverty (Robison, 2013). While there are many different accounts for why this might be the case, one particularly compelling argument asserts that arts-integrated instruction fosters students' development by presenting diverse learning opportunities that foster students' engagement, enhancing retention of academic content, and providing experiences that present greater opportunities for socioemotional development than would be presented in a non-arts-integrated classroom (Brown, Garnett, Velazquez-Martin, & Mellor, 2018).

*B.1.1. Presenting Diverse Learning Opportunities.* No two children learn in precisely the same way. A concept that is challenging for one child to understand when presented in a certain way may be readily apparent to another; moreover, the same child may understand a concept easily when it is presented one way but not when it is presented in another way. By presenting traditional academic content in non-traditional ways, an arts-integrated instructional approach increases the likelihood that a given area or aspect of content will be presented in a way that allows different children, with different approaches to learning, to understand it (Brown et al., 2018). By presenting these diverse learning opportunities, arts-integrated instruction can

transform topics of “disliked difficulty” into those of “constructive challenge” (DeMoss & Morris, 2002, p. 13). This, in turn, can facilitate students’ classroom engagement, which is the *sine qua non* of learning, and, ultimately, academic achievement.

The impact of arts-integrated instruction on students’ classroom engagement has been demonstrated in recent research. For example, in a mixed-methods study of an arts-integrated curriculum in classrooms attended by students in poverty, treatment teachers noted that struggling students became more engaged in school due to increased confidence in skills and abilities, and sense of accomplishment (Cunnington et al., 2014). A similar study found that students in arts-integrated classrooms were engaged about 75 percent of the time, whereas students who were in traditional classrooms were only engaged roughly 50 percent of the time (Miller & Bogatova, 2018).

*B.1.2. Enhancing Retention of Academic Content.* One of the most reliable predictors of whether a person will acquire new knowledge is prior knowledge of that content. Having some prior or contextual knowledge allows a person to integrate new knowledge more readily into their pre-existing understanding of a given area. This applies to children learning new academic content as readily, if not more readily, to adults who are acquiring new information. Children’s familiarity with the arts may therefore allow arts-integrated instruction to serve as a means of enhancing children’s retention of new academic content (Carney et al., 2016). This assertion is supported by a series of studies conducted by Hardiman and her colleagues (Hardiman, JohnBull, Carron, & Shelton, 2019). For example, in one of these studies these researchers examined the effects of arts-integrated lessons on long-term memory for science content. They found that students with basic reading levels who were exposed to arts-integrated instruction

remembered significantly more science content than their peers who were exposed to conventional teaching methods.

*B.1.3. Providing Opportunities for Socioemotional Development.* One additional way in which arts-integrated instruction may enhance students' retention of academic content is through the emotional connections students form with that content when it is presented using arts-integrated strategies (Gullatt, 2008). Indeed, the capacity for experiences in the arts-integrated classroom to evoke stronger emotions, and to elicit them more frequently, than is often possible in a non-arts-integrated classroom has implications for students' socioemotional development. Children's capacity for **emotion regulation** is a key component of self-regulation that is strongly associated with academic performance in elementary school (cf., Trentacosta & Izard, 2007). Like most abilities, it is strengthened through practice. Learning in an arts-integrated classroom may foster students' emotion regulation by providing them with more frequent and consistent opportunities to experience strong emotions and then bring them under control. Research conducted with young children placed at risk by poverty has supported this argument (Brown & Sax, 2013).

Arts-integrated instruction may also support another key component of self-regulation: students' **perseverance** with a task, particularly in the face of obstacles or setbacks. This may be due, in part, to the ways in which arts-integrated instruction presents diverse learning opportunities that engage students in the classroom. However, it may also be students' experience of "supported failure" in arts-integrated classrooms, whereby students are taught that failure is an integral and necessary part of the process of learning (Cunnington et al., 2014; Simpson Steele, 2016). This, in turn, may inculcate a growth mindset among students, which would lead to those students exhibiting a greater willingness to accept new, challenging tasks

and to persevere in them (Dweck, Walton, & Cohen, 2014). Consistent with this assertion, WolfBrown researchers documented significantly higher levels of growth mindset among students who were randomly-assigned to arts-integrated classrooms than their peers in a recent study conducted with elementary-school students (Wolf & Holochwost, 2019).

The experience of supported failure may also help to satisfy students' needs for emotional and intellectual security, which, in turn, can support students' engagement in **prosocial behaviors** (Purnell, Ali, Begum, Carter, 2007). Many different arts experiences have been linked to enhanced prosocial behaviors among children, from communication (Lobo & Winsler, 2006) to empathy (Goldstein & Winner, 2012; Bowen & Kisida, 2019). While fewer studies have examined the association between arts-integrated instruction and prosocial behaviors, [REDACTED] and colleagues did find a link between attendance in an arts-integrated classroom and higher levels of prosocial behaviors among young children placed at risk by poverty (Brown et al., 2018).

*B.1.4. Theory of Change.* The operative word in the conceptual framework as articulated thus far is “potential.” As noted in Section A.1., there is no single strategy for implementing arts-integrated instruction that has been demonstrated to be the most effective for fostering students' academic achievement or socioemotional development. The integrity of our conceptual framework therefore hinges upon the extent to which classroom teachers and teaching artists employ the arts-integrated instructional strategies that have been shown in previous research to foster students' academic performance and socioemotional development. To maximize the likelihood that classroom teachers and teaching artists will employ these strategies, our program will feature deliberate instruction in their use (via the Training Institute) and, just as important, instructional coaching and feedback to support and refine the use of those strategies throughout

the academic year, which an increasingly-large body of research has demonstrated is essential if educators are to implement the strategies they learn during professional development (see Kraft, Blazar, & Hogan, 2018, for a recent meta-analysis). With these approaches in place, we are confident our project will proceed as outlined in our theory of change, which we summarize here:

YAMD and PGCPs staff will contribute their time and expertise in arts-integrated instruction to the design of the Training Institute as **inputs** to the project, allowing for convenings of the institute as a key project **activity** and the training of classroom teachers and teaching artists as an essential **output**. PGCPs classroom teachers and YAMD teaching artists will contribute their time and effort to collaboratively plan and co-teach a series of arts-integrated lesson plans (another key **activity** with measurable **outputs**), while YAMD instructional coaches will offer support and feedback as these lessons are implemented.

The **intermediate outcome** of these efforts will be the implementation of arts-integrated lessons in math and ELA that feature strategies of arts-integrated instruction that have been demonstrated to foster students' academic performance and socioemotional development. WolfBrown will recruit and train a team of researchers to conduct observational assessments of these lessons in order to assess whether this outcome is being achieved, and to assess another key intermediate outcome: student engagement. Assuming that these intermediate outcomes are achieved, we are confident that the proposed program will achieve its **ultimate outcome** of fostering students' academic performance and socioemotional development, defined as increased emotion regulation, perseverance, and more positive relationships with their peers.

***Figure 1.** Theory of Change. Figure is also attached as Narrative File B.*

By expanding access to arts integrated instruction, Young Audiences/Arts for Learning and its partners will foster the academic performance and socioemotional development of young children placed at risk by poverty.				
INPUTS	ACTIVITIES	OUTPUTS	INTERMEDIATE OUTCOMES	ULTIMATE OUTCOMES
<b>Program Partner Staff</b> <a href="#">Young Audiences/Arts for Learning Maryland</a> <a href="#">Prince George's County Public Schools</a> <a href="#">WolfBrown</a> <a href="#">West Chester University</a>	<b>Training Institute Offering Instruction In:</b> - Collaborative Lesson Planning - Co-teaching - Arts-integrated strategies to promote academic performance and socioemotional development	<b>Educator Training</b> - Training for 66 Classroom Teachers and 66 Teaching Artists (over 4 academic years of the project)	<b>Implementation of Arts-Integrated Lessons Featuring:</b> - Co-teaching - Diverse learning opportunities - Opportunities to experience and regulate strong emotions - Provision of growth-oriented feedback in response to setbacks - Opportunities to engage in collaborative work	<b>Academic Performance</b> - Significantly-higher performance on year-end assessments of proficiency in ELA and math among students in treatment-group classrooms, as measured by the Woodcock-Johnson IV
<b>Educators</b> - Classroom Teachers - Teaching Artists - Instructional Coaches	<b>Instructional Coaching</b> - Observation of co-taught lessons - Structured feedback for Classroom Teachers and Teaching Artists	<b>Instructional Coaching</b> - Observation of 722 lessons (over 4 academic years) - Provision of structured feedback to 66 Classroom Teachers and 66 Teaching Artists	<b>Student Engagement in Arts-Integrated Lessons</b> - Significantly-higher levels of classroom engagement among students in treatment-group classrooms as measured by the inCLASS	<b>Socioemotional Development</b> <u>Among students in treatment-group classrooms, significantly higher levels of:</u> - Emotion regulation, as measured by the Emotion Regulation Checklist - Perseverance, as measured by a puzzle task - Prosocial behaviors, as measured by the inCLASS.
<b>Students &amp; Families</b> - Students - Families	<b>Collaboratively-Planned &amp; Co-taught Lessons</b> - Co-planning of lessons by Classroom Teachers and Teaching Artists - Co-taught lessons in English Language Arts (ELA) and math	<b>Arts-Integrated Lessons in ELA and Math</b> - Delivery of 4,352 arts-integrated lessons to 2,500 students (over 4 academic years)		
<b>EIR Grant Support</b>				

## B.2. Goals, Objectives, and Outcomes

The overall **goals** of the proposed project are encompassed by Absolute Priority 4 and Competitive Priorities 2 and 3. Thus, the project goals are:

**Goal 1:** To develop an evidence-based, field-initiated program of arts-integrated instruction designed to: a) improve the academic performance of students placed at risk by poverty; and b) develop students' emotion regulation, perseverance, and positive relationships with their peers (Absolute Priority 4).

**Goal 2:** To establish and sustain a two-way, mutually-respectful collaboration between PGCPS classroom teachers and YAMD teaching artists as they plan and deliver arts-integrated lessons designed to address students' academic and socioemotional needs by re-engaging those students in the classroom following the COVID-19 pandemic (Competitive Priority 2).

**Goal 3:** To expand access to arts-integrated instructional strategies that have been demonstrated to be effective in promoting student learning while expanding access to a well-rounded education for underserved students (Competitive Priority 3).

To achieve these goals the project team must accomplish four programmatic **objectives**. Namely, we must:

**Objective 1:** Develop an evidence-based, field-initiated program of arts-integrated instruction.

**Objective 2:** Implement and iteratively refine the program.

**Objective 3:** Rigorously evaluate the effects of the program on specified classroom and student outcomes.

**Objective 4:** Disseminate findings to the field (see also Section A.2.).

**Objective 5:** Engage 2,500 Students in YAMD’s Program

The overarching purpose of the project evaluation is to assess whether the program is achieving its specified goals. The student goals articulated above – fostering students’ academic performance, emotion regulation, perseverance, and positive relationships with their peers – are therefore the **ultimate outcomes** of the proposed project. However, as per our Conceptual Framework (see Section B.1.) and Theory of Change (B.1.4.), these student outcomes will only be achieved if classroom teachers and teaching artists reliably and consistently incorporate certain strategies into their arts-integrated instructional practice. Therefore, we must also include **intermediate outcomes** aligned to these practices. Both intermediate and ultimate outcomes are summarized in our Theory of Change, as well as in Table 1 (see Section D.1.2.), wherein we summarize the measures that will be used to gauge progress towards these outcomes.

### B.3. Addressing the Needs of the Target Population

The target population for the proposed project are children in kindergarten through third grade who are living in or near poverty and are attending school in PGCPS. As noted above, students from households in poverty are at risk for lower levels of academic achievement and

attainment over the course of their education than their more affluent peers (Duncan & Murnane, 2011). These disparities in later academic performance are rooted in parallel disparities in early school achievement (Duncan et al., 2012). By implementing a program of arts-integrated instruction that presents diverse learning opportunities for students and enhances retention of academic content, we seek to foster academic performance among students in our target population.

Although this is a necessary step in meeting the needs of our target population, it is also insufficient. Growing up in poverty impacts children's development across domains, including their socioemotional development. For example, children raised in poverty are less likely to exhibit task perseverance, in part because of lessons learned about the unpredictability of positive outcomes when they have persevered in the past (Brown, Seyler, Knoff, Garnett, & Laurenceau, 2016).

Experiences of arts education may foster perseverance (Wolf & Holochwost, 2019), as well as other domains of socioemotional development (see Goldstein, Lerner, & Winner, 2017; Holochwost, Wolf, Fisher, & O'Grady, 2017). However, students from less affluent families are among the least likely to have access to arts education (Parsad & Spiegelman, 2012). Our program is designed, in part, to expand access to arts experiences through the provision of arts-integrated instruction, and, thereby, meet the needs of our target population for access to experiences that promote socioemotional development.

The need for these experiences is particularly pronounced among our target population due to the effects of COVID-19, which were disproportionately borne by children and families in poverty and young children in particular. Recent analyses of data from the National Center for Educational Statistics by the New York Times and Stanford University revealed that



kindergarten enrollments were down nearly 10% from fall 2019 to fall 2020 and over 13% among students living in poverty. Re-engaging these students is necessary in order for them to begin regaining ground lost. As noted above, the diverse learning opportunities made possible through arts-integrated instruction have been demonstrated to enhance students' school engagement. Arts-integrated instruction can also yield benefits to aspects of socioemotional development that may have been adversely impacted by COVID-19, such as prosocial behaviors. Therefore, the proposed project addresses the needs of children and families disproportionately impacted by COVID-19.

### **C. Project Resources and Management Plan**

#### **C.1. Responsibilities, Timeline, and Milestones**

The proposed project will take place over the course of five years, beginning in January 2022 and concluding in December 2026. This span of time will be divided into four phases, each corresponding to one of the objectives articulated above (see Section B.2.).

In **Phase I** (January – July, 2022) we will develop the program and recruit the initial cohort of schools, classroom teachers, teaching artists, and instructional coaches who will participate in the pilot. The beginning of **Phase II** will coincide with the start of the first Training Institute in August 2022, and will continue through the 2022-2023 (Fall Year 1 - Spring Year 2) academic year. During this time, data will be collected from classroom teachers, teaching artists, and instructional coaches, as well as from observations of co-taught lessons. The results of the analyses of these data will be shared by WolfBrown researchers with key personnel from YAMD and PGCPs, who will use these results to refine the program.

This program refinement will continue throughout **Phase III** of the project, but in this phase we will also begin to collect data to rigorously evaluate the effects of the program on not

only classroom teachers' and teaching artists' instructional practice, but also on students. This will entail assigning classroom teachers who volunteer for the program to a treatment or control condition at the beginning of the 2023-2024 (Fall Year 2 - Spring Year 3), 2024-2025 (Fall Year 3 - Spring Year 4), and 2025-2026 (Fall Year 4 - Spring Year 5) academic years after stratifying by school and the grade of the students they teach. Classroom teachers assigned to the treatment condition will participate in the Training Institute and receive instructional coaching in the same academic year that they join the study; classroom teachers assigned to the control condition will be asked to wait one academic year before they participate in the program. Data will be collected from treatment and control condition classroom teachers and their students according to the same schedule, and preliminary analyses of both classroom teacher and student data will be shared with key YAMD and PGCPs personnel at the end of each academic year to facilitate continuous program improvement. For additional information about procedures for ensuring feedback and continuous improvement, see Section C.4.; for more information about the evaluation design, see Section D.

**Phase IV** of the project will begin in July of 2024 with the dissemination of preliminary findings from Cohort 1, and will continue through the end of the project in December 2026. During this period, WolfBrown and WCU researchers will conduct analyses of preliminary and then final data collected during the course of the project. The results of these analyses will be disseminated through presentations and publications intended for audiences of both practitioners and researchers (see Section A.2.). Please see Narrative File A for a graphical summary of the project timeline and accompanying milestones.

## C.2. Key Project Personnel

As noted above, one of the goals for the proposed project is to establish and sustain a two-way, mutually-respectful collaboration between PGCPs educators and YAMD teaching artists as they plan and deliver arts-integrated lessons designed to address students' academic and socioemotional needs. To this end, the program will be jointly designed and implemented by YAMD and PGCPs leadership, who will be supported by researchers from WolfBrown and WCU.

██████████ is Chief Program Officer at YAMD. She will be the Project Director and manage the day-to-day aspects of the project, including managing the booking and scheduling of teaching artists. ██████████ is Chief of Innovation and Strategic Initiatives at YAMD. In this role, he will manage the budget, as well as work with the Co-Principal Investigators and research team to study the impact of the project on students. ██████████ is the Creative Arts Officer of the Department of Creative and Performing Arts at PGCPs. He will support the recruitment of PGCPs classroom teachers to participate in the project and liaise with relevant PGCPs departments as it relates to learning and data sharing.

██████████ and ██████████ will serve as co-Principal Investigators for the project. In this role they will co-lead all aspects of the evaluation, including recruitment, assignment, data collection, analysis, reporting, and dissemination to research audiences. ██████████ is Director of Research for Youth and Families at WolfBrown; Professor ██████████ is a faculty member in the Department of Psychology at West Chester University. ██████████ and ██████████ have collaborated extensively on other projects at the intersection of arts education and the early development placed at risk by poverty. Along with ██████████ they co-direct the Research on Advancing Equity through the Arts in Children (REACH) Lab, a National Endowment for the Arts Research Lab.

### C.3. Project Costs

A complete accounting of project costs are included in the attached budget and explained in the accompanying Budget Narrative. As these documents demonstrate, project costs are reasonable given its objectives, design, and potential significance.

### C.4. Procedures for Ensuring Feedback and Continuous Improvement

As described below, the first goal of the evaluation is to provide results that support the iterative refinement of the program. Therefore, observational data of arts-integrated lessons will be collected by WolfBrown and WCU researchers in each academic year encompassed by the project, and the analyses of these data will be shared bi-annually, in January and the following June of each academic year. In the first, pilot year of program implementation (academic year 2022-2023, Fall Year 1 - Spring Year 2), these observational data will be supplemented by the results of focus groups conducted with educators, whereas in the remaining years of program implementation, they will be supplemented by the results of preliminary analyses of student outcome data. For additional information, see Narrative File A (Timeline & Milestones) and Section D.2.

## **D. Quality of the Project Evaluation**

The evaluation of the proposed project has two primary goals. The **first goal of the evaluation** is to provide results that support the iterative refinement of the program throughout Phase II of the project. These results, and the underlying data, will be concerned with assessing aspects of program implementation, such as the extent to which arts-integrated lessons are implemented according to plan and thus feature the strategies that our conceptual framework identifies as the catalysts of growth in student outcomes, as well as the results of preliminary

analyses of growth in specified student outcomes. The **second goal** of the evaluation is to collect and assess evidence of the project's effectiveness.

#### D.1. Evaluation Methods

To accomplish these goals, data will be collected over the course of four academic years: 2022-2023 (Fall Year 1 - Spring Year 2), 2023-2024 (Fall Year 2 - Spring Year 3), 2024-2025 (Fall Year 3 - Spring Year 4), and 2025-2026 (Fall Year 4 - Spring Year 5). Data collection during the 2022-2023 academic year will begin in August 2022, with the collection of process data during the inaugural Training Institute. Toward the end of the Training Institute we will conduct a focus group with classroom teachers and teaching artists to gauge their assessment of the quality of instruction they received during the institute and the extent to which they believe they would be able to employ the arts integration strategies they learned about during the institute in their classrooms in the upcoming academic year.

During the 2022-2023 academic year (Fall Year 1 - Spring Year 2) WolfBrown and WCU researchers will observe approximately 33% of all lessons co-taught by teachers and teaching artists who attended the 2022 Training Institute. During these observations, researchers will assign scores on an observational measure designed to assess the degree to which teachers and teaching artists implemented key arts-integrated instructional strategies that, as per our conceptual framework and theory of change, will foster students' academic performance and socioemotional development (for additional information on the observational measure, see Section D.1.2.). Toward the end of the academic year, WolfBrown researchers will again convene a focus group of educators, but in this instance the questions will focus on the quality of instructional coaching they received over the course of the academic year and they extent to which educators felt they *were* (as opposed to *would be*) able to employ the arts integration

strategies they learned about during the institute in their classrooms. The results of the analyses of data collected from the focus groups and the observational measures will be shared with key YAMD and PGCPs personnel between September 2022 and June 2023, thus fulfilling the first goal of the evaluation (for additional information on when and how these results will be shared, see Section B.2.).

The beginning of the 2023-2024 academic year (Fall Year 2 - Spring Year 3) will begin Phase III of the project, in which we evaluate program effects on classroom and student outcomes. Therefore, at the beginning of this academic year teachers who volunteer to participate in the program will be assigned at random to either the treatment or control group, after stratifying by school and the grade of the students they teach. Teachers assigned to the treatment group will participate in the Training Institute in August 2023, and will co-teach collaboratively planned lessons with teaching artists and receive instructional coaching during the 2023-2024 academic year (Fall Year 2 - Spring Year 3). Teachers assigned to the control condition will not participate in the Training Institute until August 2024, and will not co-teach lessons with teaching artists or receive instructional coaching until the 2024-2025 academic year (Fall Year 3 - Spring Year 4).

Regardless of the condition to which they are assigned, four types of data will be collected from this first cohort of teachers over the course of the 2023-2024 academic year (Fall Year 2 - Spring Year 3). First, the observational measure of key arts-integrated instructional strategies will be collected from 20% of all lessons co-taught by teachers and teaching artists in the treatment condition; a modified version of this measure that omits scales for co-teaching will be used in control-condition classrooms after matching for school, grade taught, and lesson content. Second, across both conditions a second researcher will collect observational measures

from the classroom designed to assess students' level of engagement in the lesson and positive interaction with their peers (for students whose parents provided permission for them to participate in the study). Third, at the beginning and end of the academic year classroom teachers will be asked to complete a measure of children's emotion regulation skills. Fourth and finally, at the beginning and end of the academic year researchers will collect data from children in control and treatment-condition classrooms whose families provided permission for them to participate in the study. These data will include measures of academic content knowledge in math and English Language Arts and a puzzle task of perseverance (for additional detail about these measures, see Section D.1.2.).

At the beginning of the 2024-2025 academic year (Fall Year 3 - Spring Year 4), two things would occur: first, teachers from Cohort 1 (those recruited in 2023-2024, Fall Year 2 - Spring Year 3) who were initially assigned to the control condition would be allowed to participate in the program. Second, a new cohort of teachers (Cohort 2) would be recruited into the study and assigned at random to either the treatment or control condition. Data collection would proceed with teachers in this cohort as described for Cohort 1. This process would repeat itself at the beginning of the 2025-2026 academic year (Fall Year 4 - Spring Year 5) with the recruitment of the third and final cohort (Cohort 3).

*D.1.1. Evaluation Participants.* For the sake of simplicity, we have thus far presented the evaluation as though the program were occurring at a single school. In fact, across the 2022-2023 (Fall Year 1 - Spring Year 2) and 2025-2026 academic years (Fall Year 4 - Spring Year 5), the program will be expanding to serve an increasing number of schools and classrooms: from two schools with 16 classrooms in 2022-2023 (Fall Year 1 - Spring Year 2) to seven schools in 2025-2026 (Fall Year 4 - Spring Year 5) with 66 classrooms. Therefore, the three study cohorts

described in the previous section will represent different schools that join the study in different academic years. For example, Cohort I will comprise eight classrooms in the one school that joins the study in the 2023-2024 academic year (Fall Year 2 - Spring Year 3). After stratifying by grade, four of these classrooms will be assigned at random to the treatment group, and four to the control group. Cohort II will comprise 16 classrooms in the two schools that join the study in the 2024-2025 academic year (Fall Year 3 - Spring Year 4), while Cohort III will comprise the 16 classrooms in the two schools that join the study in the 2025-2026 academic year (Fall Year 4 - Spring Year 5). Classrooms in both cohorts will be stratified by school and grade and then assigned at random to the treatment and control groups. Note that while the program will continue in schools and classrooms in each cohort after their year of participation in the evaluation, by focusing data collection on the year in which schools join the program we ensure that each school is new to the program when data collection begins and that students in the treatment and control groups at a single school attended that school in the same academic year during the year in which data were collected.

Assuming there are 20 students per classroom, on average, the population for our study would be 800 students enrolled in kindergarten through third grade. With a conservative permission rate of 50%, this would yield a sample of 400 students. Assuming that these students are representative of the broader population of PGCPS students, they would be 55% Black/African American and 36% Hispanic, with over two-thirds qualifying for free and reduced-price lunch (FRL). However, given that our program is designed for children placed at risk by poverty, we will deliberately target schools that serve higher levels of students qualifying for FRL than the District average.



*D.1.2. Evaluation Measures.* As per our theory of change (see Section B.1.4.), we anticipate that the proposed program will yield measurable change on our intermediate and ultimate outcomes. Many of the intermediate outcomes specified for the program concern educator practice during arts-integrated lessons or their control-condition (non-arts integrated) counterparts. Therefore, we will develop an **observational measure of educator practice** that includes scales assessing the following domains: 1) co-teaching (between classroom teachers and teaching artists); 2) presenting diverse learning opportunities; 3) providing opportunities to experience and 4) regulate strong emotions; 5) providing growth-oriented feedback in response to student encounters of obstacles or setbacks; and 6) opportunities to engage in collaborative work. Each of these domains will be rated on a five-point scale with descriptive anchors for scale values 1, 3, and 5. Researchers will be trained to an acceptable level of inter-rater reliability, after which 20% of observations will be observed by two researchers to maintain reliability.

This measure will be complemented by an **observational measure of student behavior** that will be collected for each child whose parents provide permission for them to participate in the study. We will use three scales drawn from the Individualized Classroom Assessment Scoring System, or inCLASS (Downer, Booren, Lima, Luckner, & Pianta, 2010): engagement with tasks (to assess students' level of classroom engagement), peer sociability, and peer communications. Recent research using the inCLASS indicates that it has acceptable levels of inter-rater reliability (71%-99%), normal distributions, construct validity, and criterion-related validity. This measure will be collected during arts-integrated lessons (for children in the treatment group) or during matched lessons at the beginning of the academic year during which the child is participating, and again at the end.

Classroom teachers in both conditions will be asked to complete the **Emotion Regulation Checklist** (ERC; Shields & Cicchetti, 1997) for each child who participates in the study at the beginning and end of the academic year in which they participate. The ERC is one of the most widely-used measures of emotional regulation in children, including in studies of children placed at risk by poverty. Finally, WolfBrown researchers will conduct a series of direct cognitive-behavioral assessments with children in both conditions at the beginning and end of the academic year in which they participate. During this session researchers will administer two tests from the **Woodcock-Johnson IV** (WJ-IV): letter word identification test and the applied problems test, which are commonly-used assessments of proficiency in English Language Arts and math (respectively) for which there is extensive evidence of internal consistency, test-retest reliability, and convergent validity (McGrew, LaForte, & Schrank, 2014). Following administration of the WJ-IV, researchers will then administer a **puzzle task of perseverance** drawn from the Laboratory-Based Temperament Assessment Battery. Puzzle tasks have been widely used to index perseverance in children (Glass & Singer, 1972; Maxwell & Evans, 2000), including in studies of children placed at risk by poverty (see Brown, 2009). Table 1 summarizes the measures according to type of outcome and domain as specified in our Theory of Change.

**Table 1.** Outcomes and Measures

<b>Intermediate Outcomes</b>	
<i>Domain</i>	<i>Measure (Scale(s))</i>
Lesson Implementation	Observational measure of educator practice
Student Engagement	inCLASS (Engagement with Tasks)
<b>Ultimate Outcomes</b>	
<i>Domain</i>	<i>Measure (Scale(s))</i>

Academic Performance	Woodcock Johnson IV (Letter-word identification, Applied Problems)
Emotion Regulation	Emotion Regulation Checklist
Perseverance	Lab-TAB (Puzzle Task)
Prosocial Behaviors	inCLASS (Peer Sociability, Peer Communications)

*D.1.3. Data Analysis.* Two types of data analysis will be conducted to satisfy the two goals of the evaluation. To support the iterative refinement of the program, data must be analyzed and shared with program leadership in time for them to make adjustments to the program before its cycle of implementation. To this end, our analyses of focus group, observational, and student outcome data collected in 2022-2023 (Fall Year 1 - Spring Year 2), 2023-2024 (Fall Year 2 - Spring Year 3), and 2024-2025 (Fall Year 3 - Spring Year 4) will focus on descriptives and interactive visualizations. This will allow program leadership to readily apprehend the preliminary findings that emerge during each of the first three years of program implementation.

As noted above, the second goal of the evaluation is to assess evidence of the project’s effectiveness. Therefore, it will be necessary to compare both educators and child outcomes using data collected across treatment and control groups for study Cohorts I, II, and III. For educators, this will entail comparing scores across five domains of the observational measure of educator practice: presenting diverse learning opportunities (1), providing opportunities to experience (2) and regulate strong emotions (3), providing growth-oriented feedback in response to student encounters of obstacles or setbacks (4), and opportunities to engage in collaborative work (5). This will be accomplished using a series of two-level hierarchical linear models (one for each domain of educator practice), in which the classroom is nested within school. The focal

predictor will be *group*, which will enter the models as a categorical variable (0=control, 1=treatment). For each domain of educator practice where there is a statistically significant effect for *group*, the model-implied estimates for both levels of group will be used to calculate the effect size of the program on that domain. In accordance with guidelines established by *What Works Clearinghouse*, an effect size of 0.25 or greater will be used as the threshold for a program of practical significance.

A broadly similar approach will be employed for the analyses of the student data, though in this case we will employ a three-level hierarchical model in which students are nested within classrooms, which are nested within school. Moreover, these models will include levels of each outcome collected at the beginning of the academic year as covariates. Thus, model-implied estimates for group will reflect intra-individual residualized change in each outcome. For multiple outcomes drawn from the same measure (e.g., the letter-word identification and applied problems scales of the WJ-IV) a Holm adjustment will be employed to correct for multiple comparisons among indicators with shared method variance. Prior to running these models, data will be inspected for systematic patterns of missingness (including that due to differential attrition) and baseline inequivalency in beginning of the year measures across the treatment and control groups. Assuming no differential attrition and inequivalency less than 0.25 standard deviations for any measure, our evaluation methods will allow us to satisfy *What Works Clearinghouse* guidelines for with (if inequivalency is less than 0.25 standard deviations) or without reservations (if it is less than 0.05 standard deviations).

#### D.2. Provision of Performance Feedback and Periodic Assessment of Progress

As noted above, the first goal of the evaluation is to provide results that support the iterative refinement of the program during Phase II of the project. To this end, the data collected

across the 2022-2023 academic year during the initial Training Institute and first year of instructional coaching will be shared with key YAMD and PGCPS personnel. Results of the analyses of data collected during the first focus group conducted with educators (in August 2022) will be shared in September 2022. Results of the analyses of data collected using the observational measure from lessons observed in September through December of 2022 will be shared in January 2023, while data collected using this measure between January and May 2023 will be shared in June, along with analyses of data collected during the second focus group.

The refinement of the program will not end with the conclusion of the 2022-2023 academic year. Rather, the program will be iteratively refined during each of the three remaining academic years of implementation. Therefore, WolfBrown researchers will continue to provide performance feedback regarding the implementation of lessons and arts-integrated instructional strategies in partial fulfillment of the second goal of the evaluation. This will entail sharing the results of analyses of data collected using the observational measures on a bi-annual basis, with the first presentation of these data occurring in January of each academic year (and covering data collected the previous September through December) and the second presentation occurring the following June (and covering data collected in January through May).

At the June presentation for the 2023-2024 and 2024-2025 academic years, WolfBrown researchers will also present preliminary analyses of data collected from students using the measures described above in Section D.1.2. These analyses will focus on the degree of growth in specified student outcomes.

### D.3. Contribution to the Field

The assignment of young children to narrow envelopes of academic and life achievement on the basis of familial income is, as one author put it, the shame of our nation (Kozol, 2005),

and that shame has been cast in high relief by the outbreak of COVID-19. Perhaps now more than ever, educators, policymakers, researchers have a moral duty to design, implement, and evaluate programs that can foster the academic achievement and attainment of high needs students. The project proposed here will support a program for which there is a compelling theoretical framework drawn from a nascent body of research, but that to date has not been implemented. As per that framework, we anticipate that the program will yield measurable and meaningful changes in educators’ instructional practice, and, thereby, student outcomes. If we are correct, the proposed project will have elucidated an innovative approach to fostering the academic performance and socioemotional development of young children placed at risk by poverty.

**Optional Project Narrative Files Reference Table**

<b>File Name</b>	<b>Descriptive Title</b>
Narrative File A - Timeline & Milestones	Timeline & Milestones
Narrative File B - Theory of Change	Theory of Change

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	2022				2023				2024				2025				2026			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Share results of preliminary data analysis with program leadership																				
<i>Cohort 3</i>																				
Recruit schools, classrooms, and students for cohort 3																				
Randomly assign classrooms to treatment and control groups																				
Collect classroom observation and student data																				
<b>PHASE IV: Disseminate Findings to the Field</b>																				
Conduct analyses of data collected across cohorts 1, 2, and 3																				
Dissemination of preliminary findings																				
Dissemination of final findings																				

By expanding access to arts integrated instruction, Young Audiences/Arts for Learning and its partners will foster the academic performance and socioemotional development of young children placed at risk by poverty.

INPUTS	ACTIVITIES	OUTPUTS	INTERMEDIATE OUTCOMES	ULTIMATE OUTCOMES
<p><b>Program Partner Staff</b></p> <p><u>Young Audiences/Arts for Learning Maryland</u></p> <p><u>Prince George's County Public Schools</u></p> <p><u>WolfBrown</u></p> <p><u>West Chester University</u></p>	<p><b>Training Institute Offering Instruction In:</b></p> <ul style="list-style-type: none"> <li>- Collaborative Lesson Planning</li> <li>- Co-teaching</li> <li>- Arts-integrated strategies to promote academic performance and socioemotional development</li> </ul>	<p><b>Educator Training</b></p> <ul style="list-style-type: none"> <li>- Training for 66 Classroom Teachers and 66 Teaching Artists (over 4 academic years of the project)</li> </ul>	<p><b>Implementation of Arts-Integrated Lessons Featuring:</b></p> <ul style="list-style-type: none"> <li>- Co-teaching</li> <li>- Diverse learning opportunities</li> <li>- Opportunities to experience and regulate strong emotions</li> <li>- Provision of growth-oriented feedback in response to setbacks</li> <li>- Opportunities to engage in collaborative work</li> </ul>	<p><b>Academic Performance</b></p> <ul style="list-style-type: none"> <li>- Significantly-higher performance on year-end assessments of proficiency in ELA and math among students in treatment-group classrooms, as measured by the Woodcock-Johnson IV</li> </ul>
<p><b>Educators</b></p> <ul style="list-style-type: none"> <li>- Classroom Teachers</li> <li>- Teaching Artists</li> <li>- Instructional Coaches</li> </ul>	<p><b>Instructional Coaching</b></p> <ul style="list-style-type: none"> <li>- Observation of co-taught lessons</li> <li>- Structured feedback for Classroom Teachers and Teaching Artists</li> </ul>	<p><b>Instructional Coaching</b></p> <ul style="list-style-type: none"> <li>- Observation of 722 lessons (over 4 academic years)</li> <li>- Provision of structured feedback to 66 Classroom Teachers and 66 Teaching Artists</li> </ul>	<p><b>Student Engagement in Arts-Integrated Lessons</b></p> <ul style="list-style-type: none"> <li>- Significantly-higher levels of classroom engagement among students in treatment-group classrooms as measured by the inCLASS</li> </ul>	<p><b>Socioemotional Development</b></p> <p><u>Among students in treatment-group classrooms, significantly higher levels of:</u></p> <ul style="list-style-type: none"> <li>- Emotion regulation, as measured by the Emotion Regulation Checklist</li> <li>- Perseverance, as measured by a puzzle task</li> <li>- Prosocial behaviors, as measured by the inCLASS</li> </ul>
<p><b>Students &amp; Families</b></p> <ul style="list-style-type: none"> <li>- Students</li> <li>- Families</li> </ul>	<p><b>Collaboratively-Planned &amp; Co-taught Lessons</b></p> <ul style="list-style-type: none"> <li>- Co-planning of lessons by Classroom Teachers and Teaching Artists</li> <li>- Co-taught lessons in English Language Arts (ELA) and math</li> </ul>	<p><b>Arts-Integrated Lessons in ELA and Math</b></p> <ul style="list-style-type: none"> <li>- Delivery of 4,352 arts-integrated lessons to 2,500 students (over 4 academic years)</li> </ul>		
<p><b>EIR Grant Support</b></p>				