Summer Support for School Success (Project S4)

Waterford Institute

July 2024

INTRODUCTION

Founded in 1976, Waterford has a 46-year history of stability and success that has enabled it to consistently partner with state education agencies (SEAs), education services centers, and local education agencies (LEAs) across the nation to provide innovative and impactful digital learning programs. Waterford currently serves approximately 250,000 children annually across the country, with an emphasis on rural areas, with home and classroom solutions. Having met all eligibility requirements of the Education Innovation and Research Early-phase opportunity, Waterford has prepared this narrative response in an effort to meet high-need rural populations with a focus on *Absolute Priorities 1 and 2*, as well as *Competitive Preference Priority 1 and 2*. The project is designed to support the development of Waterford's Summer Learning Path (SLP) program model and evaluate it in a study that meets What Works Clearinghouse standards without reservations.

A. SIGNIFICANCE

This proposal enforces a strong collaboration between LEAs, SEAs, and nonprofit education leaders driven by educational need and dedicated to successful outcomes. Waterford understands the limitations and obstacles faced by students within rural communities and provides an educational solution via innovative technology and other supports. Through strategic vision, committed partnerships, and newly implemented resources, Waterford's Summer Support for School Success (Project S4) proposal tackles early education access gaps in rural areas by offering an innovative learning solution during the critical summer transitions to kindergarten and to first grade.

1. Severity of the Problem to be Addressed by Summer Support for School Success (Project S4)

Project S4 will further develop and refine the Summer Learning Path (SLP) model, addressing significant challenges faced by children in rural communities, particularly in terms of school readiness and access to high-quality early education opportunities. Research underscores the critical importance of high-quality early childhood programs for disadvantaged children, demonstrating a substantial return on investment of 13.7 percent per child, per year (Garcia et al., 2017). These programs yield long-term benefits, including reduced crime rates, lower special education costs, higher educational attainment, improved health outcomes, and economic mobility (Garcia et al., 2017)—ultimately contributing to the reduction of intergenerational and community poverty and promoting equity.

Despite these benefits, access to early education and support for school readiness remains a significant issue. In 2021, preschool enrollment was just over 50 percent (Griffiths, 2023), indicating that approximately 4.3 million children aged three to four were not enrolled in preschool. This service gap is particularly detrimental for children in rural areas (Morrissey et al., 2022), where barriers such as longer travel distances to preschools, fewer available programs, and limited transportation options exacerbate the problem. The COVID-19 pandemic further impacted preschool enrollment, with significant declines observed nationwide, especially in rural areas (Showalter et al., 2023; Weisenfeld, 2021).

States with a high percentage of rural schools, such as the project focus states of Mississippi (50%) and New Hampshire (48%), often do not prioritize state funding equally between early education and K-12 education (Friedman-Krauss et al., 2024; Miller & Votruba-Drzal, 2013; NCES, 2018; Showalter et al., 2019). While some states are making efforts to increase funding for early education, the overall investment remains insufficient to meet the

needs of rural communities. The costs associated with necessary inputs like transportation, a qualified teacher workforce, and adequate facilities make high-quality center-based preschools prohibitively expensive in these regions.

By focusing on children eligible for participation the summers before and after kindergarten, this program seeks to bridge the school readiness and service gap, ensuring rural children receive the foundational education they need for kindergarten and beyond. In an effort to mitigate the lingering educational impacts of COVID-19 more districts are seeking evidence-based expanded learning opportunities beyond traditional school-year offerings, including early education interventions that utilize technology-based instruction. Summer learning programs are influential and have shown to produce positive impacts for children, reducing educational inequities particularly in subjects such as mathematics in both higher- and lower-poverty contexts (Lynch et al., 2021). Additionally, summer learning programs can be a cost-effective tool when combined with existing community resources. However, rural districts have still been more reluctant than urban and suburban districts to spend their allocated Elementary and Secondary School Emergency Relief funding (ESSER III) on summer learning programs, despite their proven benefits, leaving a service gap for millions of rural learners (Diliberti & Schwartz, 2024; FutureEd, 2022).

Through Project S4, we aim to create a robust SLP model that can be replicated and scaled to serve communities nationwide. By focusing on early academic support and leveraging the benefits of technology-based learning, the program seeks to address the disparities in educational access and readiness that rural children face. Our commitment to continuous improvement and collaboration with key stakeholders will ensure that the program meets the highest standards of quality and effectiveness, ultimately contributing to the broader goal of

educational equity and excellence for all children.

2. National Significance of Project S4

Project S4 offers an innovative capacity-building model for helping rural SEAs, LEAs, and families overcome barriers to early learning supports. Rural schools located furthest from urban centers (rural-remote) consistently have the lowest achievement scores among rural locales across most grades (Johnson et al., 2022). Rural students are experiencing significantly more summer learning loss than their non-rural peers, negating any school-year gains and hindering readiness to excel in the next grade level. With about one in five U.S. students attending rural schools (NCES, 2018), the scarcity of early childhood supports in these locales attacks the very foundation of our national progress and achievements.

3. Development or Demonstration of Promising New Strategies

Demand for the very small-scale SLP exploded as a response to the urgent learning needs presented by the COVID pandemic for some of the hardest to reach learners in rural areas. Its first year design for more than single use cases–2020–was developed very quickly for immediate implementation to meet the changing educational needs resulting from COVID; however as Waterford moves beyond a reactive implementation of this program, the goal is to leverage the power of summer learning to consistently improve student achievement and attainment for early learners at scale, especially those most in need.

Project S4 will enable Waterford to evaluate, within the SLP model, both literacy and math with intentional rigor to build the body of evidence required to improve program outcomes and support the organization's national scaling plan toward universal kindergarten readiness and continued school success while meeting students in all available learning opportunities.

This is an early stage project because the SLP model lacks consistent evidence in both

literacy and math and for the entirety of a multi-year delivery, and any for delivery with early childhood care providers (provider). As indicated below, evidence shows promise in at-home math and literacy singularly and in a single cohort of one age group, but without replicable, multi-year impacts in both literacy and math or in a provider setting, SLP is an early stage scaling innovation. Evaluations to date have shown varying patterns of evidence in math versus literacy and from cohort to cohort which suggest the need to delve deeper to understand how better to create consistent impact in both math and literacy in all deliveries pathways for multiple age groups.

Absolute Priority 1 – Evidence of Effectiveness (Rationale)

Randomized Controlled Trial Evaluation of the Waterford Summer Learning Path in South Dakota and Wyoming (2023; Strong Evidence for **Math only at home**): In a randomized control trial, 329 students were assigned to use either the SLP Reading or SLP Math programs during the summer of 2022 before entering kindergarten (Evaluation and Training Institute, 2023b). Students were assessed at the beginning and end of the program using the Kaufman Test of Educational Achievement Third Edition (KTEA-3). When assessed at the end of the program, students participating in the SLP math program scored significantly higher than their reading counterparts on measures of early math skills, including Concepts and Applications, Computation, and Core Composite. Effect sizes, reported in Hedge's g, ranged from $g = 0.25$ (Concepts and Application) to $g = 0.37$ (Core Composite). There were no statistically significant differential treatment effects when analyzing the influence of the demographic and socio-economic factors; however, math treatment students who began the program with lower math scores (low performance) had a larger average gain in math learning by the end of the program.

Impact of the Upstart Program on Forestalling Summer Learning Loss (2019; Moderate Evidence for **One of three cohorts only at home**): Students in Cohort 1 used the Upstart Summer program during the summer between kindergarten and first grade (Hobbs & Overby, 2019). Regression analysis revealed that Upstart Summer program participation was a significant predictor in reducing overall literacy learning loss ($p = 0.003$) for students in Cohort 1. Treatment students had a higher average increase than the control students on Reading Composite Scale ($g = 0.22$), NWF-CLS ($g = 0.32$), and LNF ($g = 0.17$) test scores. Students in Cohort 2 and Cohort 3 used the Upstart Summer program during the summer between first grade and second grade (Cohort 2) or during the summer between second grade and third grade (Cohort 3). Regression analysis revealed that participation in the Upstart Summer program for Cohort 2 and Cohort 3 was not a significant predictor of forestalling learning loss.

Evaluation of the Efficacy of Waterford Summer Learning Path (2022; Promising Evidence for **Literacy only at home**): This study evaluates the efficacy of the Waterford SLP program that was assigned to four-year-old students ($N = 3,082$) across 11 states during the summer of 2021 before beginning kindergarten using the Waterford Assessment of Core Skills (WACS) (Shamir, Ortiz-Wood, Pocklington, & Yoder, 2022). WACS is an adaptive assessment designed to assess 11 key pre-literacy and reading skills. Initial content validity for WACS was established against state and national standards for the 11 subtests. Analysis revealed a significant difference between beginning and end of program scores, $t(1298) = 45.21$, $p < .05$), with students achieving significantly higher WACS scores after participating in the SLP ($M = 2641.96$, $SD = 578.88$) compared to their WACS scores at the beginning of the program ($M = 1989.85$, $SD = 375.17$). Effect size ($d = 1.25$).

Using computer-assisted instruction to fidelity to combat learning loss in early learners (2023; Promising Evidence for **Literacy only at home**): This study examined the degree to which fidelity of usage moderates the efficacy of a targeted computer-assisted instruction program (Shamir, Plockington & Yoder, 2023). Analysis of end of program scores revealed that students who used the program to fidelity, for at least 1,350 minutes, during the summer prior to the start of kindergarten, significantly outperformed students who did not use the program to fidelity, with less than 750 minutes of total usage, on a measure of early reading skills. Analysis did not reveal a significant difference in beginning of program scores between groups, $t(1, 657)= 0.99$, $p = .324$. Start of program scores made by experimental students ($M = 1992.37$) and control students ($M = 1963.43$) were comparable to each other. Analysis revealed a significant difference in end of program scores between groups, $t(1, 659) = 4.01$, $p< .05$, due to the higher end of program scores made by experimental students ($M = 2701.57$) than by control students ($M = 2525.28$). Effect size ($d = 0.31$).

Absolute Priority 2 – Field-Initiated Innovations-General

SLP is a field-initiated innovation that overcomes the most difficult early learning access barriers for rural, underserved populations. Pockets of "nonconsumption"—like the high-quality early learning access gap—are ideal for disruptive innovations (Christensen & Horn, 2008) like SLP, which serves rural children who have very limited access to traditional early learning supports, high-quality preschools, and academic summer experiences.

The Waterford approach (Section B) breaks down barriers while maximizing existing resources. It ensures that educational resources are tailored to meet the needs of families, with a particular focus on incorporating caregivers' perspectives into the design of educational tools, underscoring the importance of caregiver involvement in the educational process. For

center-based staff and other educators, initial training, ongoing coaching and professional learning, and family engagement events are included in the implementation plan to provide the tools, data, and support they need to help every child succeed. Waterford's professional services framework is based on the latest research in implementation science, personalized learning, and blended learning competencies, as well as our team's extensive experiences in districts, schools, and classrooms.

Competitive Preference Priority 1 — Promoting Equity in Student Access to Educational Resources and Opportunities

Historically Black Colleges and Universities (HBCUs) are uniquely positioned to foster community engagement, as they are "anchor institutions in their communities and critical platforms for the education and advancement of students of color." As such, they have "'inherent trust' and 'cultural sensitivity' built up over time" (McKinsey Institute for Black Economic Mobility, 2021, p. 2), which are critical assets for overcoming barriers of trust that many Black families experience with educational organizations (Jensen, 2009; Ritchie & Gutmann, 2014). By leveraging their educational expertise, community connections, and commitment to serving diverse and historically marginalized populations, HBCUs can make significant contributions to supporting Project S4's expansion into rural areas in southern states, ultimately improving educational outcomes for children in these communities.

Jackson State University-College of Education and Human Development (JSU-CEHD) will be a lead partner for Project S4 to support the piloting and expansion of the SLP program in rural Mississippi communities. JSU-CEHD will designate faculty to support the project, playing a pivotal role in recruitment and enrollment by connecting with rural stakeholders, supporting outreach initiatives grounded in culturally responsive practices, and enhancing program

effectiveness through advisory support on best practices. Additionally, JSU-CEHD will contribute to refining program strategies and resources and provide thought leadership in disseminating project findings.

The collaboration will not only support early learners in Mississippi, but will foster professional growth opportunities for university students through hands-on experience with an evidence-based program and research project. This partnership will ensure diverse participation reflective of local demographics and ultimately contribute to improved educational outcomes for children living in rural Mississippi communities.

Competitive Preference Priority 2—Addressing the Impact of COVID-19

Project S4 aims to mitigate the ongoing educational impacts of COVID-19 by offering expanded learning time in rural communities, with a special focus on supporting early learners during the critical summer months as they transition into kindergarten and first grade.The project leverages computer adaptive instruction for students and tailored coaching for caregivers and early childcare providers led by skilled educators, former teachers, and local community leaders.

The complexity and diversity of the current early childhood education system creates significant variability and logistical challenges in children's preschool and summer opportunities. In response, the SLP model extends learning time at home or in centers, ensuring continuous access to effective education opportunities for children participating in short-term summer programs or no summer program. By integrating culturally responsive practices and data-driven instruction, the SLP model provides a bridge to school readiness, ensuring all students can achieve academic success without contributing to tracking or remedial courses early in a child's educational journey.

B. QUALITY OF THE PROJECT DESIGN

1. Conceptual Framework and Logic Model

Project S4 is an intentional, early-stage assessment of the Waterford Upstart SLP program deployed post-pandemic as an ad hoc pivot to emergent learning loss needs in South Dakota and Wyoming in 2022 through the Upstart Great Plains TASK Force EIR Expansion Grant (2018, PR/Award #U411A18000, Idaho, Montana, Wyoming, South Dakota, and North Dakota). Project S4 aims to further innovate and refine the SLP model, a 13-week program initially designed to prepare pre-K students to enter school ready to learn.

SLP leverages a proven logic model (Appendix A) that incorporates elements from Waterford's Upstart program, an innovative blend of adaptive, personalized early learning software within a developmentally appropriate usage model supported by caregivers at home or center-based educators to drive kindergarten readiness outcomes. Similar to the school year program, it is recommended that children use the program software 20 minutes a day, five days a week. Key program elements include:

Adaptive literacy and math software. Comprehensive, adaptive software and supplemental activities in literacy and social-emotional learning are aligned to state early childhood development standards, NAEYC Early Childhood Program Standards, and the Head Start Early Learning Outcomes Framework. This comprehensive, adaptive, and interactive reading, math, and science curriculum includes 2,500+ lessons; 7,000+ activities; 360 digital books; 330 animated songs; and 450+ instructional hours, supporting state and national standards for early learning and pre-K–2.

Adaptive assessments (WACS and AYLA). Waterford administers a pre- and post-assessment to document growth and optimize implementation. The assessments have a robust research-based

design rooted in the science of reading. They utilize a computerized-adaptive measure supported by data from over one billion item interactions, efficiently measuring foundational literacy skills crucial for early literacy development. The assessments aid in making informed instructional decisions for individual children and also provide valuable insights for supporting classes and small groups. Integrating these assessments into a summer program innovatively combines real-time, personalized feedback for data-driven instructional decisions typically not available outside of a traditional classroom.

Educational technology. Computers (laptops and tablets) and internet access are provided to families with financial need. As a participation incentive, families can keep the laptop or tablet if they meet program participation requirements.

Recruitment. Waterford collaborates with SEAs, LEAs, and a network of partners, referred to in this study proposal as "recruitment agencies," which include local providers and community partners. These entities actively identify and recruit program participants (ages 4-6) for both in-home and center-based program settings. An innovative feature of the SLP model is its flexibility to be implemented at home or in centers, necessitating distinct recruitment strategies. The "recruitment agencies" leverage their expertise and networks to maximize the program's likelihood of reaching children with the greatest need. The two primary roles of partners involved in recruitment are:

Local Providers: Children recruited by local providers use the program on site at a center or community location. Local provider staff directly roster children into the SLP program. At the center location, staff act as the primary facilitators of the program. Waterford supports these providers by offering coaching on establishing learning routines, motivating learners, and using data to support instruction with groups of children. Additionally, Waterford provides them with

resources and support to engage families and extend learning outside the technology platform.

Community Partners: Children recruited by community partners use the program at home. As a trusted partner in the community, they directly connect Waterford's Community Engagement team with families, facilitating seamless communication and engagement during the registration process, enhancing credibility with the community, and improving program acceptance. Once contact is made with the families, the caregiver enrolls the child into the SLP program. Waterford provides coaching directly to the caregiver, who assumes the role of the primary facilitator of the child's use of the program at home.

Onboarding/Orientation. Waterford staff ensure participants and the supporting adult are well-prepared and supported from the start, providing welcome materials and conducting coaching calls to understand their goals.

Family/educator engagement. Waterford coaches and professional learning consultants monitor children's program usage and provide reports, motivation, feedback, and coaching for families, caregivers, and educators, using a mix of live and technology-mediated strategies.

Reports. Families and providers receive a concise report with insights into their child's performance and links to Waterford resources and activities to support literacy and math development. Waterford also reports results to stakeholders.

Specific Strategies for Reaching High-Need Students

Waterford's program incorporates proven strategies to overcome major barriers to scale in rural areas, including availability of services, cost, transportation, performance fidelity, parental preferences, and local priorities.

Access and availability of services. Program can be implemented in a continuum of settings (at home or center-based) and develops the caring adult's skills, eliminating the need for any

additional space, staff, curriculum, or training.

Cost. The average cost is estimated at $1,061 per child, including software, training and coaching, and technical support ($440), computers ($290-557, estimated 50 percent of served) and internet ($396, estimated 25-30 percent of served); with a range of $290 (low-end hardware and internet estimate) to $953 (high-end hardware and internet estimate). SLP is not intended to replace or threaten site-based programs, but rather, to provide affordable, scalable options for developing school readiness in rural areas that are unserved or underserved by existing services.

Transportation. The program model is based in the home or at an existing center setting, reducing transportation barriers. Waterford support staff will conduct virtual or in-person social learning activities for participating families, arranged to minimize the transportation burden.

Performance fidelity. The SLP model leverages technology's ability to scale, cope, and perform with fidelity under an increased workload, expanded and refined specifically for rural learners.

Parental preferences. The home-based or center-based option can be implemented to optimize family preference without disrupting existing activities so that students can be school ready.

Priorities. One of the most pervasive barriers to scale for this type of evidence-based program is a lack of understanding around the importance of early childhood education. Waterford has successfully worked with decision makers to achieve sustainable public funding streams for school year programs similar to SLP in Utah, Nevada, Montana, New Mexico, and Ohio.

2. Goals, Objectives, and Outcomes

The project is centered around two goals: to develop and refine the SLP program (pilot study) and enhance student readiness for school (impact and implementation study). Objectives to achieve goal one focus on partnership and collaboration to successfully implement the study and refine components. Objectives for goal two center on student and adult reach and service and

dissemination of findings. Outcomes will be determined by success measures including number of participants and registrants in the curriculum and in adult learning opportunities, caregiver and educator engagement, usage measures, number of participants achieving gains and growth in math and literacy measures, percent growth in math and literacy gains, fidelity measures, caregiver and educator resource usage data, completion rates of pre- and post-testing and other evaluation, and numbers of opportunities to disseminate findings. The full list is found in Appendix B.

3. Addressing the Needs of the Target Population

The main target audience for this project will be participants living in rural areas, with a grade level focus on children in the summer before and after kindergarten. For the purposes of this project, the states of rural area focus are Kentucky, Missouri, Mississippi, New Hampshire, North Carolina, Oklahoma, South Carolina, and Texas. Waterford intends to work with SEAs, LEAs, community partners (Partners for Rural Impact and others), and education organizations (National Summer Learning Association and others) in executing a collaborative recruitment process. Additionally, through a partnership with Jackson State University - College of Education and Human Development (JSU-CEHD), priority regions such as Southeast Mississippi, Southwest Mississippi, Delta region, and Central Mississippi will be targeted.

Furthermore, Waterford is a mission-driven organization, and diversity, equity, and inclusion (DEI) are at the heart of who we are and what we do. Waterford's National Advisory Committee on Inclusive Practices (NACIP) (Section C), serves as an advisory and consultive body to support the social and cultural needs of the families and communities Waterford serves.

In consultation with SEAs, LEAs, Institutions of Higher Education (IHEs), education advocacy organizations, and the project team, opportunities for feedback are built into the

multi-year management plan and will be revisited annually. Data in the continuous feedback system include: recruitment goals and results; recruitment to full registration outcomes; training attendance; weekly usage; family engagement event attendance; assessment data; parent and teacher feedback; and ongoing partner and field feedback.

C. QUALITY OF THE PROJECT PERSONNEL

Waterford serves approximately 250,000 students annually with our home and classroom solutions, and is able to do so with a robust team of 365. Waterford aims for a workforce that represents the diversity of the communities it serves. The organization actively seeks talent that represent diverse backgrounds, perspectives, experiences, and identities. Waterford is committed to fostering a workplace culture and organizational identity that welcomes and values the unique contributions that employees and stakeholders bring in terms of education, culture, ethnicity, race, gender identity and expression, nation of origin, age, languages spoken, veteran's status, religion, disability, sexual orientation, and beliefs. Waterford believes that diverse representation should exist across the breadth (functions) and depth (hierarchy) of the organization.

This vital rural partnership effort will involve nine internal project personnel as well as supporting teams providing expertise in program operations, reporting and project management, responsive community engagement, community partnerships, state partnerships, strategic scaling, research, and curriculum and instruction. Four of the individual team members were involved in the previously completed i3 and EIR Expansion grants as well as the previously awarded (2023, ongoing) EIR Expansion grant, all for school year programs. The remaining five team members are engaged with the 2023 EIR Expansion grant scaling a school-year program. Also supporting the project is Westat as the external evaluator, led by [redacted] (evaluation project director with previous i3 grant experience) and [redacted] (evaluation PI).

All project roles for the key personnel associated with this EIR project can be found in Appendix D.

With an intentional focus on Promoting Equity in Student Access to Educational Resources and Opportunities (Competitive Preference Priority 1), Waterford is partnering with a team from the College of Education and Human Development (CEHD) at Jackson State University, an HBCU and a minority-serving institution, to support program development and implementation under the leadership of [redacted], Associate Professor and Chair of the Department of Elementary and Early Childhood Education.

Other implementation partners will include local district liaisons, national early childhood education leaders and thought partners through Waterford's National Advisory Committee on Inclusive Practices (NACIP) and National Early Learning Advisory Council (NELAC) (full member list may be found in Appendix E), National Summer Learning Association, Partners for Rural Impact, the State of New Hampshire's Department of Education, and other capacity building entities.

D. QUALITY OF THE MANAGEMENT PLAN

Waterford places vital emphasis on research, planning, and implementation activities. Our organization will offer SLP in both home-based and center-based settings. Center-based participants will have a built-in referral support system, as the center-based facilities (Head Start, schools, etc.) will provide the necessary educational and community resources to participating students. Home-based learners will also be connected to referrals in the form of community-based agencies, LEAs, and other educationally-based entities that may benefit them. Waterford support staff will ensure that all students are connected to impactful educational resources, ensuring that learners in all settings have access to resources and a pathway to

success, as illustrated in the SLP logic model (Appendix A).

The Project S4 team (Project Director, Chief Scientist, Community Engagement, National Partnerships, Government Relations, Chief Academic Officer, Project Management and Reporting, and Waterford Support Teams) will collaborate with strategic and impactful partners (External Evaluator Westat, Jackson State University, Partners for Rural Impact, National Summer Learning Association, New Hampshire Department of Education, and Appalachian Educational Service Agency) in executing a cohesive management plan described in Appendix G. Student needs, partnerships, the promotion of equity, project sustainability, and other strategic factors will all be taken into account during the pursuit of project goals to align with budget and timeline. Project S4 will be supported by a dedicated and trained project management team to ensure that this highly complex, cross-functional, multi-year project is managed according to best practices. The entire project team is trained on and actively using key project management resources–Jira and Aha!, among others–to ensure core milestones (summarized below) are met.

Phase I: Years 1-2 (2025, 2026):

1. Collaborate with implementation partners (Partners for Rural Impact, JSU-CEHD, SEAs, and LEAs) to identify and recruit 600 children and families annually for pilot cohorts.
2. By January 2026, launch a summer Early Learning PLC in collaboration with National Summer Learning Association to foster strategic partnerships and enhance scalability. Engage a minimum of 20 key stakeholders and early learning professionals annually (2026, 2027).
3. Implement the pilot study cohorts by June of each project year (2025, 2026) across delivery models, achieving a minimum of 70 percent start rate for registered participants.
4. Evaluate the outcomes of the pilot study cohorts by December of each year (2025, 2026)

to assess the feasibility and impact of SLP, completing 100 percent of cohort reports and disseminating them to stakeholders.

5. Refine fidelity measures, recruitment strategies, and engagement approaches to enhance program effectiveness by December of each year (2025, 2026). Identify at least one critical improvement for each delivery model.

Phase II: Years 3-5 (2027, 2028, 2029):

1. By June 2027 and June 2028, increase access to SLP for underserved students and students with high needs by recruiting 1,200 children and families annually for impact study cohorts.
2. Beginning May 2027, provide comprehensive coaching and technical support to the adults supporting participants to increase participant usage by 5-10 percent annually; concludes with feedback gathering events to inform evaluation that follows.
3. Complete one independent evaluation of SLP program outcomes that meets What Works Clearinghouse (WWC) standards without reservations by December 2029.
4. Disseminate study findings to stakeholders and the broader education community by completing 10-15 engagements (i.e., webinars, conference presentations, publications) and periodically (i.e., e-newsletters, progress reports, stakeholder meetings) before December 2029. (Ongoing 2025-2029).

E. QUALITY OF PROJECT EVALUATION

Westat will conduct an independent evaluation of the SLP reading and math curricula, using a design that will (a) have the potential to meet WWC Standards Without Reservations, (b) provide performance feedback allowing for periodic assessment of progress, (c) assess implementation across key SLP components, and (d) test mediators and moderators of the treatment effects.

As addressed in detail in the Evaluation Overview (Appendix H), the project is guided by nine core research questions:

1. To what extent do 4- 6-year-olds who engage with the SLP reading curriculum have higher scores on a measure of phonics and alphabetics than a comparable group who engage with the SLP math curriculum after 10 weeks? (confirmatory)
2. To what extent do 4- 6-year-olds who engage with the SLP math curriculum have higher scores on a test of numbers and operations than a comparable group who engage with the SLP reading curriculum after 10 weeks? (confirmatory)
3. To what extent are curricula implemented as intended? (implementation)
4. What are the challenges associated with implementing each curriculum? (implementation)
5. What are the challenges associated with center- and home-based delivery models? (implementation)
6. What is the relative cost effectiveness of each curricula using center- versus home-based delivery models? (implementation)
7. To what extent do outcomes differ for children who attend center-based programs compared to children who engage in the program from home? (Moderator analysis) (exploratory)
8. To what extent do outcomes differ for children who attend in summer 2027 versus summer 2028? (Moderator analysis) (exploratory)
9. To what extent does implementation fidelity contribute to reading and math outcomes? (Mediator analysis) (exploratory)

The evaluation has confirmatory, implementation, and exploratory research questions.

Confirmatory research questions 1 and 2 will be addressed in an impact study as Westat tests whether the SLP reading and math curricula successfully improves literacy and math skill development among children ages 4 through 6 living in rural communities. Implementation questions 3, 4, and 5 are meant to yield interim findings that will support Waterford's continuous improvement efforts by using findings from an initial cohort to inform intervention updates in a second cohort.Question 6 examines the relative costs of center- versus home-based support for achieving impacts.Answers to exploratory questions 7 through 9 about the effects of mediators (fidelity) and moderators (delivery setting, cohort) will inform Waterford's development of a final version of the intervention.

1. Evaluation Methods used to Meet WWC Evidence Standards Without Reservations

Study Design. This impact study will examine SLP impacts among children enrolled in summer 2027 and summer 2028 using an RCT design that can meet WWC Standards Without Reservations. Appendix I lists information that will be presented in the final impact report. Once Waterford has obtained consent to collect data for the evaluation, Westat will randomly assign children to receive either the SLP math or reading curriculum. This means that the SLP math group will be the control group in the reading intervention study and vice versa.

This overall design has been successfully implemented in earlier evaluations of the Upstart program that have met WWC Standards Without Reservations (Overby & Hobbs, 2016; Hobbs & Overby, 2017). The primary advantage of this approach is that it can yield rigorous evidence for both the SLP reading and math curricula. It also simplifies sample recruitment, because few students will be recruited into the study with the prospect that they might not experience a treatment. The drawback to this design is that both treatment and control students will have access to SLP software, raising the prospect of treatment contamination. However,

using the math software is not expected to meaningfully influence reading outcomes and vice versa. This is because SLP software is used to deliver password protected modules with domain-specific curricula designed to promote self-efficacy and mastery in the given topic area. In fact, Hobbs & Overly (2017) found robust effects in reading outcomes when the comparison students used Upstart Math.

Westat will randomize study participants within blocks based on cohort (summer 2027 vs. summer 2028) and the agency that recruits study participants (i.e. local providers and community partners). Additional details are in Appendix J. Individual-level random assignment is ideal because many children, particularly those who need academic support and live in rural areas, lack access to center-based summer programs. The use of year and recruitment agency as blocks for randomization will eliminate confounds stemming from all participants in a block being assigned to either the SLP reading or SLP math curricula.

Baseline Characteristics. Waterford will collect children's baseline characteristics (e.g., age, grade, race, ethnicity, English learner, and Special education status) during SLP implementation. Data will include background characteristics (e.g., age, grade, race, ethnicity, English learner, and Special education status) to meet WWC sample requirements and for use as additional covariates in the impact estimation models to mitigate any unexpected problems with study attrition.

Waterford will also provide Westat with baseline student-level academic information by administering the *Waterford Assessment of Core Skills* (WACS; Waterford, 2018). WACS assesses students' broad academic skills and has high internal consistency as measured by Cronbach's alpha (0.90 > 0.60) and high test-retest reliability (0.90 < 0.40[JF1]). These data will be used to describe the analytic sample and serve as covariates in the impact estimation models.

In the unlikely event of high attrition (details below), these data can be used to establish baseline equivalence because the WACS provides a standardized measure of student academic skills.

Student Outcomes. To ensure the independence of the evaluation, Westat will collect outcome data using the commercially available Kaufman Test of Educational Achievement-3rd Edition (KTEA-3; Kaufman & Kaufman, 2014), which includes a range of subtests across language, literacy, and math domains for use with children ages four and older. The assessment has sufficiently high internal consistency (0.77 to 0.85 is greater than the required 0.60) and test-retest reliability (0.90 is greater than the required 0.40). Outcome data from children in the reading group will be collected virtually using the phonological awareness subtest and from children in the math group using the math concepts and applications subtest. Children will complete the assessment during the last two weeks of the intervention. Westat will train assessors and provide instructions for facilitation support to be provided by either center-based staff or a home-based caregiver or parent.

Attrition. The study design assumes that 83 percent of children will complete an assessment based on previous evaluations of related interventions (Hobbs & Overby, 2019; Watt & Therrien 2016). Westat assumes that there will be low differential attrition between the two groups because both are receiving a version of the SLP program, also consistent with previous findings by Hobbs and Overby (2017) who used a similar design and found only a two-percentage point differential attrition rate between children in the reading and math groups.

Impact Estimation. Westat will conduct an independent analysis of the data begin with (1) an ITT impact analysis of the average KTEA-3 phonological awareness z-scores (for the SLP reading study) and (2) an ITT KTEA-3 math concepts and applications Z-scores (for the SLP math study). The differences serve as preliminary estimates of the two SLP impacts to answer

research questions 1 and 2. Westat will then estimate a regression-based version of the impact estimates using a fixed-effects ITT approach. The impact estimation model for the SLP reading impact will be a regression of phonological awareness subtest Z-scores on an SLP reading group indicator, baseline characteristics, year, and recruitment agency fixed effects, and an error term, with standard errors clustered within year and the recruitment agency. The coefficient of the group indicator shows the effect of the SLP reading curriculum on phonological awareness. The impact estimation model for the SLP math program will be constructed in a similar way using the math concepts and applications subtest Z-score.

Westat will use regression models to answer exploratory questions 7, 8, and 9. For research question 7, Westat will remove the year-recruitment agency fixed effects and include a single indicator for whether the study participant attends a center-based program and an interaction term between that indicator (delivery setting) and the group indicator (reading vs. math). The coefficient on the interaction term indicates the relative difference between the SLP impact of center-based programs compared to home-based delivery. For research question 8, Westat will use a similar process and include a single indicator for whether the study participant is in the summer 2027 cohort. For research question 9, Westat will add interactions of baseline characteristics with the group indicator and fidelity scores as covariates.

The primary ITT impact models will use complete case analyses (i.e., no imputed outcome data) with dummy imputation baseline data. Westat will also include a model with nonresponse weights to create an analysis sample with similar baseline characteristics as the population of study participants. The final report will include the results of sensitivity analysis using different approaches to address missing baseline characteristics and baseline and outcome data.

Statistical Power. The study is designed to meet WWC Standards Without Reservations and is sufficiently powered to detect the potential impacts of the SLP program. Previous studies have shown annual impacts of the Upstart program at 0.41 standard deviations (SD) for reading and 0.39 SD for math. Westat assumes that the SLP intervention that lasts for the summer will have roughly one-third of the impact of the academic year impact, or 0.14 SDs for reading and 0.13 SDs for math. In contrast, the minimum detectable effect sizes (MDES) of the study are 0.109 standard deviations for both reading and math. The calculations are based on a study sample size of 2,400, with 2,000 having outcome data (83 percent) and baseline characteristics covariate data and are based on conventional assumptions for the probabilities of Type I and type II errors (i.e., half the sample randomized to each group, and an R^2 of 0.25). Appendix K shows that higher rates of outcome missingness and lower R^2 do not have a substantive effect on the MDESB.

2. Clearly Articulated Key Project Components, Mediators, and Outcomes

Using the SLP logic model (Appendix A) as a basis, Westat will work with the Waterford team to refine the draft fidelity framework to measure SLP implementation included as Appendix L. The framework provides a foundation for instrument development and will yield quantitative fidelity scores used in the mediator analysis (question 9) to estimate outcomes, measure fidelity (question 3), and support continuous improvement (questions 4 & 5). It includes operationally defined indicators for 3 components (Engaging and supporting providers, Using data and resources to facilitate learning, and Opportunities for summer learning) plus data sources, possible scores (0-3), and quantitative fidelity thresholds (e.g., 3 = 80 percent of students attend for 10 or more weeks, 0 = fewer than 25 percent of children use program 20 minutes/day) to measure adequacy of implementing each indicator (Appendix L).Fidelity scores distinguish among low, medium, and high levels implementing each component, which will be used to guide

continuous improvement once the proposed draft is finalized (in collaboration with Waterford).

In addition to data for the impact analysis, Westat will also collect: project documents to measure study participant enrollment and attendance, and coaches' contacts with center- and home-based providers; surveys (for center staff and caregivers) to learn more about availability of needed resources and support, their perceptions of preparedness to facilitate children's summer learning and children's engagement and attitudes towards literacy and math learning; platform analytics for data about resources used by providers; and frequency and duration of children's online program exposure.

3. Guidance About Effective Strategies Suitable for Replication

Our approach to fidelity measurement yields performance feedback and permits periodic assessment of progress towards achieving intended summer learning outcomes. Data collected to measure fidelity implementing each indicator will be used to identify scalable strategies (i.e., those implemented with consistently high fidelity) and to strengthen implementation fidelity by targeting resources and coaching support to increase consistent use of a growing number of strategies at adequate levels. Answers to exploratory questions 7 – 9 will provide guidance about aspects of implementation contributing to math and reading outcomes, whether outcomes are similar across center- and home-based delivery models, whether outcomes are similar across cohorts, and the relative cost-effectiveness (i.e., suitability) of replicating SLP to support summer learning among 4- to 6-year-olds in other rural communities.

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